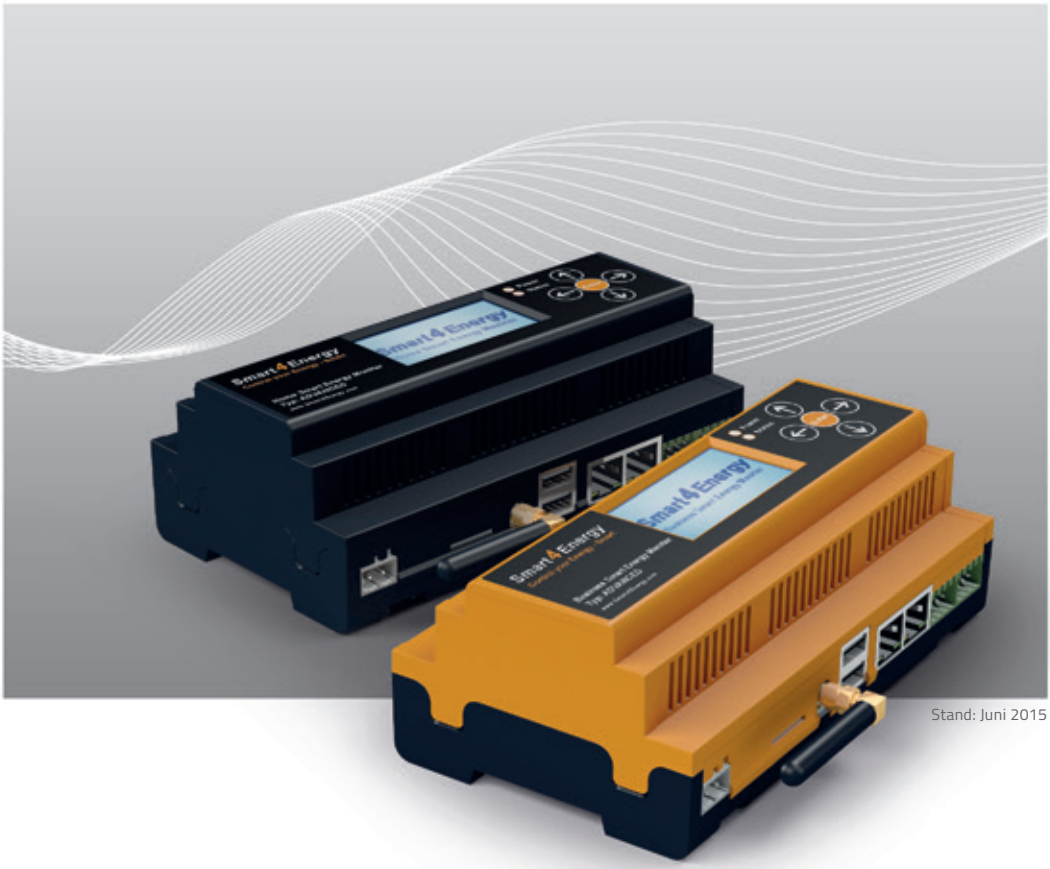

Stand: Juni 2015

SMART ENERGY MONITOR

Benutzerhandbuch

User Guide

Smart4Energy

Control your Energy – Smart

INHALTSVERZEICHNIS

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DE

1. VORWORT

Sehr geehrte Kundin, sehr geehrter Kunde,

vielen Dank, dass Sie sich für den Smart Energy Monitor entschieden haben.
Bitte lesen Sie die vorliegende Bedienungsanleitung des Smart Energy Monitor sorgfältig durch, bevor Sie das Gerät in Betrieb nehmen. Diese Anleitung hilft Ihnen beim

- **bestimmungsgemäßen,**
- **sicheren und**
- **vorteilhaften Gebrauch des Smart Energy Monitor.**

Jede Person, die den Smart Energy Monitor

- **anschließt,**
- **bedient,**
- **reinigt oder**
- **entsorgt,**

muss den vollständigen Inhalt dieser Bedienungsanleitung zur Kenntnis genommen haben.
Bitte bewahren Sie die Anleitung immer in der Nähe des Gerätes auf.

2. EINLEITUNG

Diese Dokumentation unterstützt Elektrofachkraft und Nutzer bei der Montage, Inbetriebnahme sowie Konfiguration des Smart Energy Monitor.
Ziel ist die individuelle Anpassung des Smart Energy Monitor auf die lokale Installation und persönlichen Bedürfnisse.

Der Smart Energy Monitor ist ein Werkzeug, um die vom Energiezähler gemessene Wirk-, und Blindleistung zu visualisieren.

Die Embedded Software des Smart Energy Monitor wird ständig verbessert und erweitert.
Die Online-Updates können dazu führen, dass sich Konfigurationsmenüs in ihrem Design und ihrer Handhabung ändern. Ebenso können Funktionen hinzukommen oder wegfallen.

Für welche Software-Version des Smart Energy Monitor diese Dokumentation gilt, wird auf der letzten Seite angegeben.

3. VERWENDETE SYMBOLE

In dieser Anleitung werden folgende Arten von Sicherheitshinweisen und allgemeine Hinweise verwendet:

	Warnung vor allgemeiner Gefahr
	Warnung vor gefährlicher elektrischer Spannung
	Vor Benutzung Benutzerhandbuch lesen
	Allgemeine Information
	Elektrostatisch gefährdete Bauelemente ESD
	Entsorgungshinweis
	CE-Kennzeichnung

4. WICHTIGE HINWEISE

In Verbindung mit dieser Bedienungsanleitung sind weitere Unterlagen gültig. Für Schäden, die durch Nichtbeachtung dieser Anleitungen entstehen, wird keine Haftung übernommen.

Mitgeltende Unterlagen:
Beachten Sie bei der Bedienung des Gesamtsystems unbedingt auch alle Bedienungsanleitungen, die den Komponenten Ihrer Installation beiliegen. Dazu zählen vorrangig die herstellereigenen Bedienungsanleitungen der Einzelkomponenten.

Mit der CE-Kennzeichnung wird dokumentiert, dass der Smart Energy Monitor den Anforderungen genügt, die die Europäische Gemeinschaft für die Anbringung dieser Kennzeichnung festgelegt hat. Alte elektrische und elektronische Geräte enthalten häufig wertvolle Materialien. Entsorgen Sie ein altes Gerät deshalb nicht in den Restmüll. Geben Sie das Gerät bei einer kommunalen Sammelstelle für Elektroschrott ab.

Lesen Sie vor einer Inbetriebnahme zuerst die nachfolgenden Sicherheitshinweise:

4.1 Allgemeine Sicherheitshinweise

Beachten Sie bei der Bedienung alle Betriebs- und Sicherheitshinweise in dieser Anleitung, die jeder Handlung vorangestellt sind. Nichtbeachtung kann Schäden am Gerät verursachen und eine Gefahr für Personen darstellen. Diese Sicherheitshinweise gelten in der Bundesrepublik Deutschland. Bei der Verwendung in anderen Ländern sind die einschlägigen nationalen Regeln zu beachten.

4.1.1 Bestimmungsgemäße Verwendung

Der Smart Energy Monitor ist nach dem Stand der Technik und den anerkannten sicherheitstechnischen Regeln gefertigt. Dennoch können bei unsachgemäßer oder nicht bestimmungsgemäßer Verwendung Beeinträchtigungen des Geräts und anderer Sachwerte entstehen.

Der Smart Energy Monitor wird zur Visualisierung des Verbrauchs innerhalb einer Elektroinstallation eingesetzt. Er darf ausschließlich mit den zur Verbrauchsmessung bestimmten Geräten verbunden werden. Eine andere oder darüber hinausgehende Benutzung gilt als nicht bestimmungsgemäß.
Für hieraus resultierende Schäden haftet der Hersteller nicht. Das Risiko trägt alleine der Betreiber.
Verwenden Sie das mitgelieferte Zubehör nur für den Einsatzzweck, welcher in dieser Bedienungsanleitung beschrieben ist. Darüber hinaus gehört zur bestimmungsgemäßen Verwendung auch das Beachten der Bedienungs- und Installationsanleitung sowie aller weiteren mitgeltenden Unterlagen.

Beachten Sie alle Informationen in dieser Bedienungsanleitung, insbesondere die Sicherheitshinweise. Jede andere Verwendung gilt als nicht bestimmungsgemäß und kann zu Sachschäden oder sogar zu Personenschaden führen.

Es wird keine Haftung für Schäden übernommen, die durch eine nicht bestimmungsgemäße Verwendung entstehen.

4.1.2 Qualifikation des Fachhandwerks

Die Installation des Smart Energy Monitor darf nur von einer anerkannten Elektrofachkraft durchgeführt werden. Diese übernimmt auch die Verantwortung für die ordnungsgemäße Installation und Inbetriebnahme.

4.1.3 Vermeidung von körperlichen Schäden

Beachten Sie im Umgang mit dem Smart Energy Monitor sämtliche an Verpackung und am Gerät angebrachten Sicherheitshinweise. Prüfen Sie vor Inbetriebnahme und regelmäßig im laufenden Betrieb, dass am Gerät und am Zubehör keine Beschädigungen vorliegen. Vergewissern Sie sich im Zweifelsfall bei einer Elektrofachkraft über die Unversehrtheit der Technik. Sollten Beschädigungen am Smart Energy Monitor vorliegen oder Reparaturen notwendig sein, überlassen Sie diese ausschließlich autorisierten Personen.

Öffnen Sie den Smart Energy Monitor nicht! Das Entfernen oder Beschädigen des Gehäuses kann spannungsführende Teile freilegen und die Funktion der Geräte beeinträchtigen. Darüber hinaus erlischt die Gewährleistung!

4.1.4 Vermeidung von Schäden am Smart Energy Monitor

Der Smart Energy Monitor besitzt die Schutzart IP20 und ist ausschließlich für die Montage im trockenen, staubfreien Innenbereich geeignet. Schützen Sie das Gerät vor Staub, Nässe, aggressiven Stoffen und Dämpfen. Die Umgebungstemperatur muss zwischen -10°C und +45°C liegen.

Berühren Sie keine elektronischen Bauteile oder Anschlüsse am Smart Energy Monitor, da dies Beschädigungen oder Zerstörungen zur Folge haben kann. Erden Sie sich, bevor Sie am Gerät arbeiten.

ACHTUNG:
Eine Fehlbeschaltung der Anschlüsse kann zur Zerstörung des Geräts führen.

Bei Beschädigungen oder Zerstörungen am Smart Energy Monitor ist dieser sofort von einer Fachkraft außer Betrieb zu nehmen.

Betreiben Sie den Smart Energy Monitor nur, wenn das Gerät in einem technisch einwandfreiem Zustand ist. Wenden Sie sich bei Fehlermeldungen am Gerät immer an einen anerkannte Elektrofachkraft.

4.2 Gebrauchshinweise

ACHTUNG:
Das Gerät darf nur am öffentlichen Stromnetz betrieben werden.
Öffnen Sie das Gerät nicht. Es besteht Lebensgefahr durch einen Stromschlag!
Eine Fehlbeschaltung der Anschlüsse kann zur Zerstörung des Geräts führen.

Gehen Sie sorgfältig mit dem Gerät um.

- **Setzen Sie es nicht zu hoher Feuchtigkeit aus.**
- **Durch mechanische Einwirkungen kann das Display beschädigt werden.**
- **Die zulässigen Betriebsspannungen entnehmen Sie bitte dem technischen Datenblatt.**

Nehmen Sie das Gerät nicht in Betrieb,

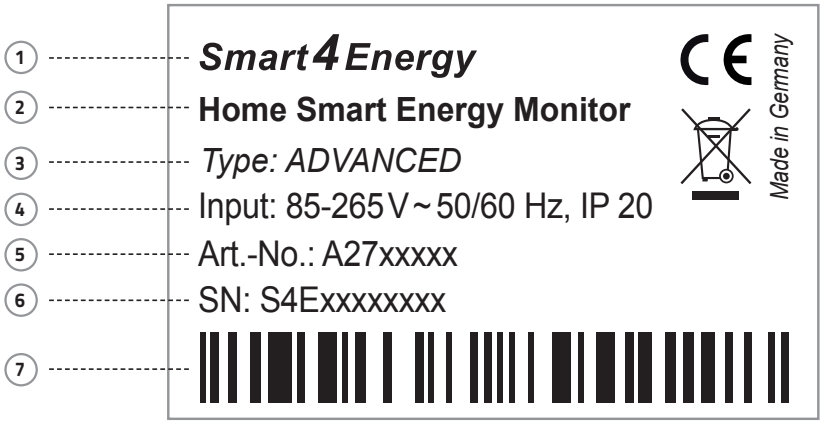
- **wenn es sichtbare Beschädigungen aufweist,**
- **wenn sich lose Teile im Gerät befinden oder**
- **wenn es längere Zeit im Freien oder in feuchten Räumen verwahrt wurde.**

4.3 Verpackung

Bitte bewahren Sie die Verpackung für eventuelle spätere Transporte auf (Umzug, Reparatur).
Die Originalverpackung schützt Ihren Smart Energy Monitor am besten vor etwaiger Beschädigung.

5. GERÄTEÜBERSICHT

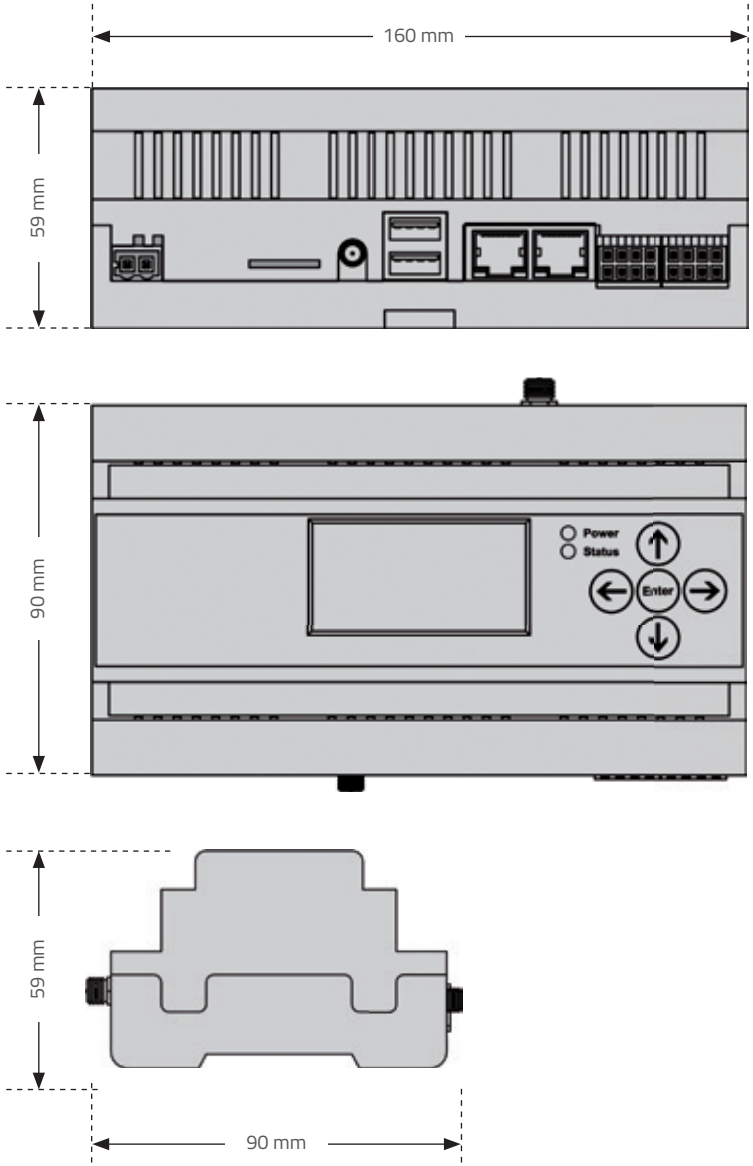
5.1 Produktetikett



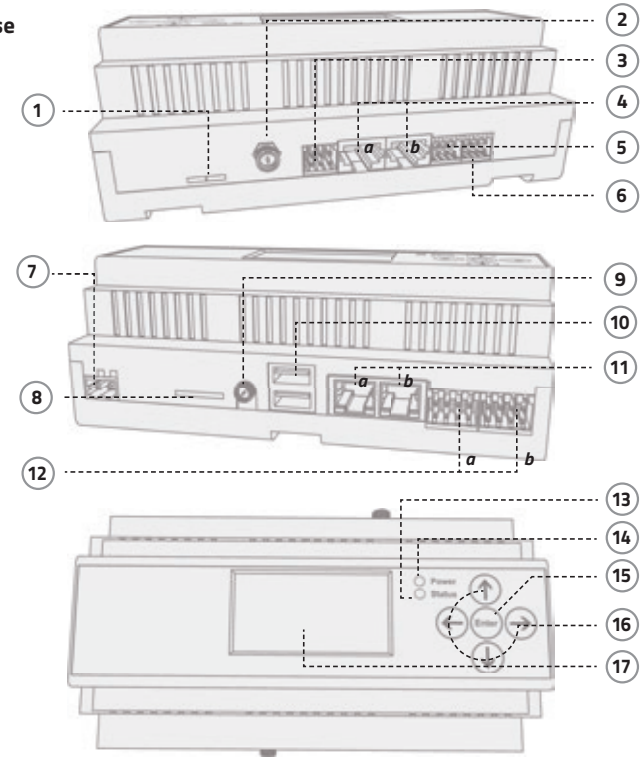
Beispielhafte Darstellung

Nr.	Beschreibung
1	Marke
2	Bezeichnung
3	Typ
4	Technische Info
5	Artikelnummer
6	Seriennummer
7	Barcode

5.2 Abmessungen



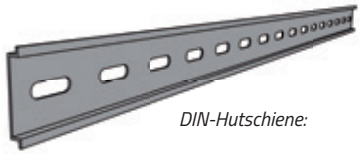
5.3 Anschlüsse



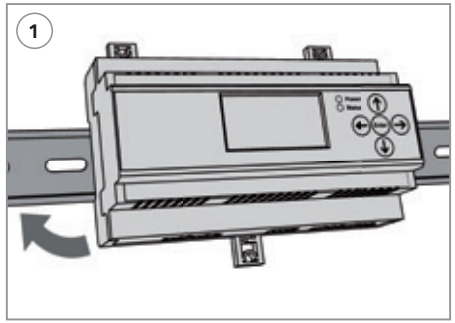
Nr.		Beschreibung:
1	SD-Kartenslot	Hier eine handelsübliche Mini-SD-Karte einsetzen
2	WiFi-Antennenanschluss	Anschluss WiFi-Antenne für Datenübertragung per W-LAN
3	Bus-Schnittstelle	Schnittstelle für S0-Bus (1 x) und CAN-Bus (1 x)
4a	RJ-45 Buchse	Schnittstelle für CAN-Bus (1 x)
4b	RJ-45 Buchse	Schnittstelle für RS485 (1 x Halb-Duplex)
5	RJ-45 Buchse	Schnittstelle für RS485 (1 x Full-Duplex)
6	RS485-Schnittstelle	Schnittstelle für RS485 (2 x Halb-Duplex)
7	Power Buchse	Netzanschlussbuchse L & N (230 V_{AC} 50 Hz – 60 Hz)
8	SIM-Kartenslot	Hier eine handelsübliche Mini-SIM-Karte einsetzen
9	GSM-Antennenanschluss	Anschluss GSM-Antenne für Datenübertragung per GSM (Mobilfunk)
10	USB-Port	USB 1 und USB 2
11a	Ethernet	Ethernet 1
11b	Ethernet	Ethernet 2
12a	Analoge Schnittstellen	Analogausgang (2 x), Analogeingang (2 x), PT 1000-Anschluss (1 x)
12b	Digitale Schnittstellen	Digitalausgänge (6 x)
13	Status LED	signalisiert Aktivität, z.B. Zugriff auf Speicher, etc.
14	Power LED	zeigt die Betriebsbereitschaft an
15	Enter Taste	Auswahl bestätigen
16	Cursor-Kreuz	Menünavigation, Programmweiterschaltung (← →), Programmweiterschaltung (↑ ↓)
17	LCD-Display	Darstellung Menü

6. MONTAGE

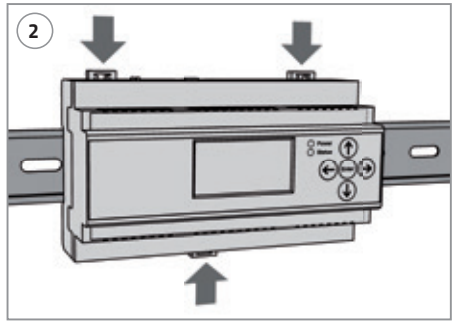
6.1 Montage auf DIN-Hutschiene*



DIN-Hutschiene:



Setzen Sie das Gerät gemäß Abbildung auf die Hutschiene auf.

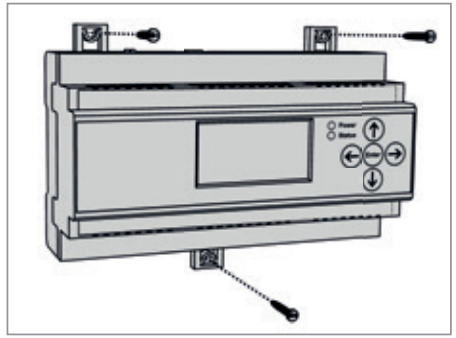


Arretieren Sie das Gerät mit dem Hutschienenhalteclip.

6.2 Alternative Befestigung*

Der Smart Energy Monitor kann mit Hilfe der integrierten Hutschienenhalteclips gemäß Abbildung montiert werden.

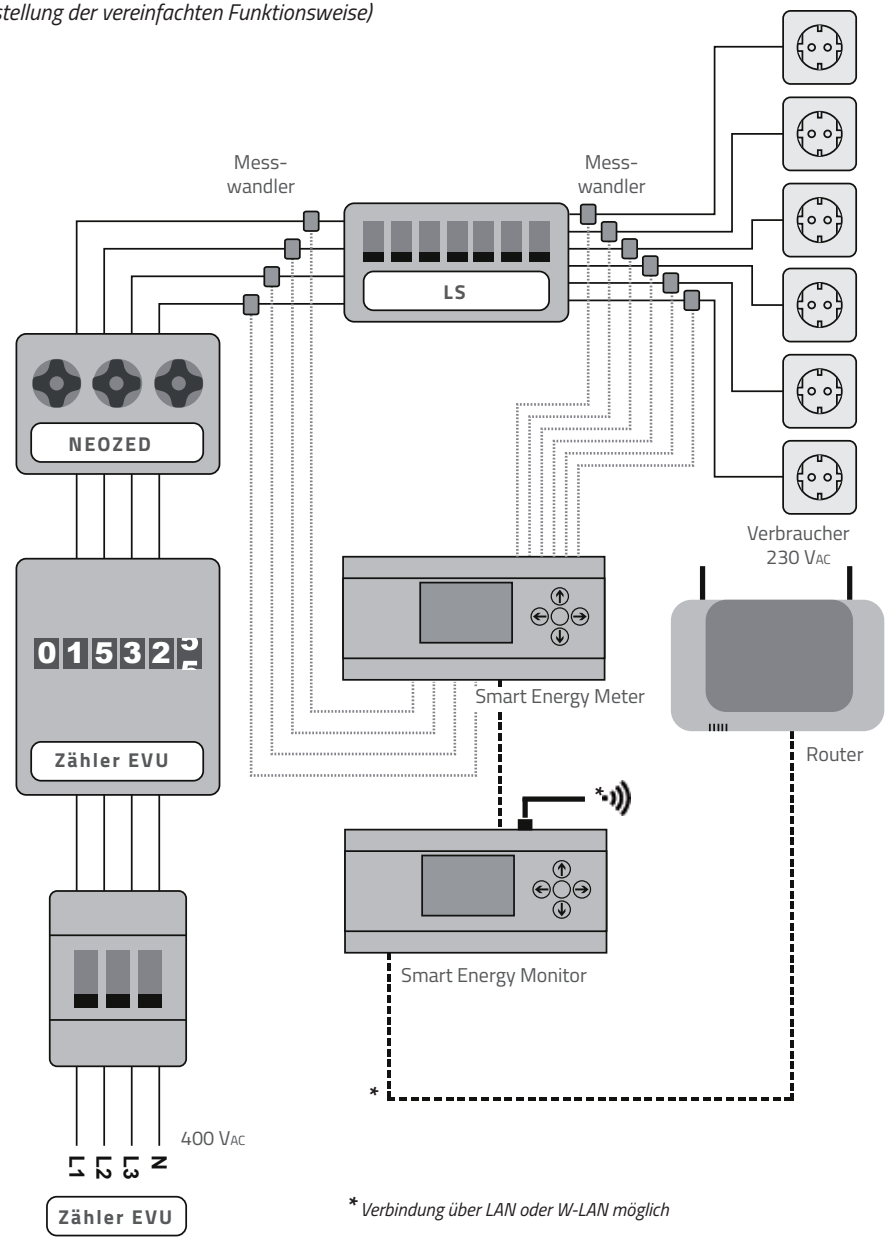
Wir empfehlen jedoch die Montage des Smart Energy Monitor auf einer separaten DIN-Schiene (6.1).



* *Gerät muss in einem Brandschutzgehäuse wie z.B. Schaltschrank installiert werden.*

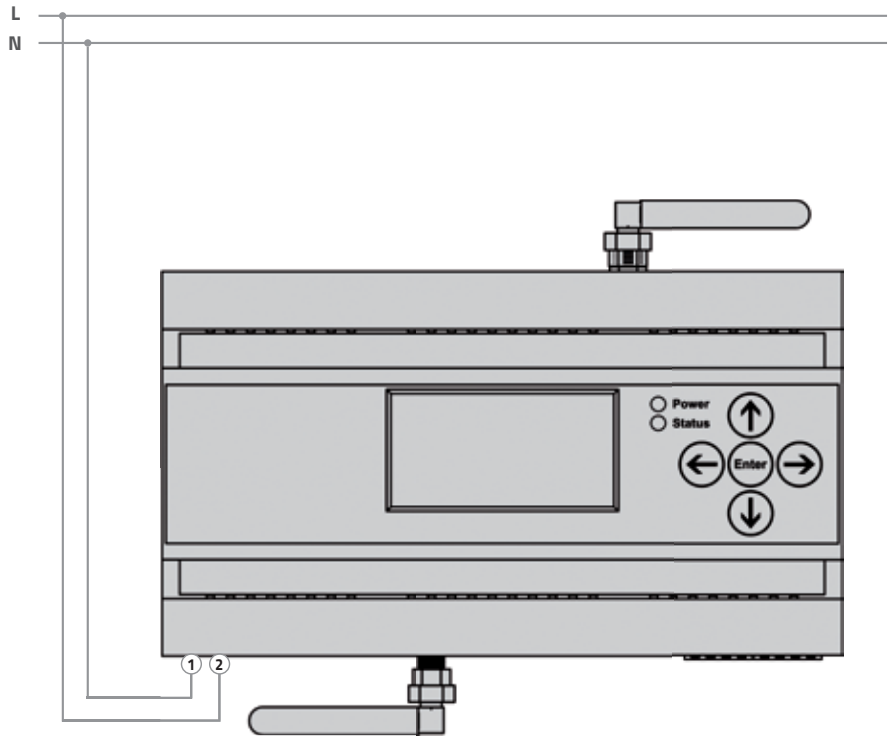
7.1 Anschlussschema Smart Energy Monitor

(Darstellung der vereinfachten Funktionsweise)



* *Verbindung über LAN oder W-LAN möglich*

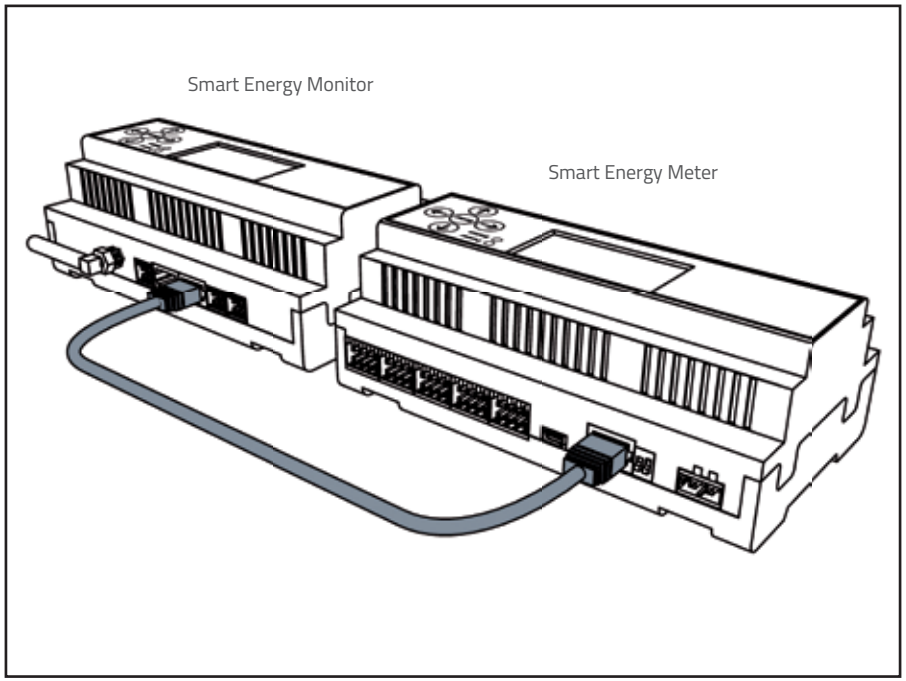
7.2 Spannungsversorgung / Anschlussplan



7.3 Vernetzung der Geräte

Verbindung zwischen Monitor und Meter

Der Monitor wird mittels eines RS485 Kabels an den Meter angebunden. Auf diese Weise werden die gesammelten Daten des Meters an den Monitor übertragen.



7.4 Netzwerkkonfiguration

LAN-Konfiguration

Bei einem kabelgebunden Netzwerk mit einem DHCP-Server muss nichts konfiguriert werden, da der Monitor alle nötigen Informationen über das Netzwerk bezieht.
Die Konfiguration kann manuell geändert werden, dies kann allerdings zu Fehlfunktionen führen.

Um die Konfigurationsdaten der LAN-Verbindung zu ändern, melden Sie sich zunächst im Gerät an (siehe Kapitel 8: "Menü") und gehen dann wie folgt vor:

Damit die Informationen nicht mehr automatisch aus dem Netzwerk bezogen werden, muss die Einstellung DHCP durch bestätigen der Enter-Taste von "true" auf "false" geändert werden.
Danach können alle LAN-Einstellungen mit Hilfe der virtuellen Tastatur manuell geändert werden.
Nachdem die gewünschten Änderungen getätigt wurden, muss die Auswahl "Übernehmen" mit Enter bestätigt werden.

WLAN-Konfiguration

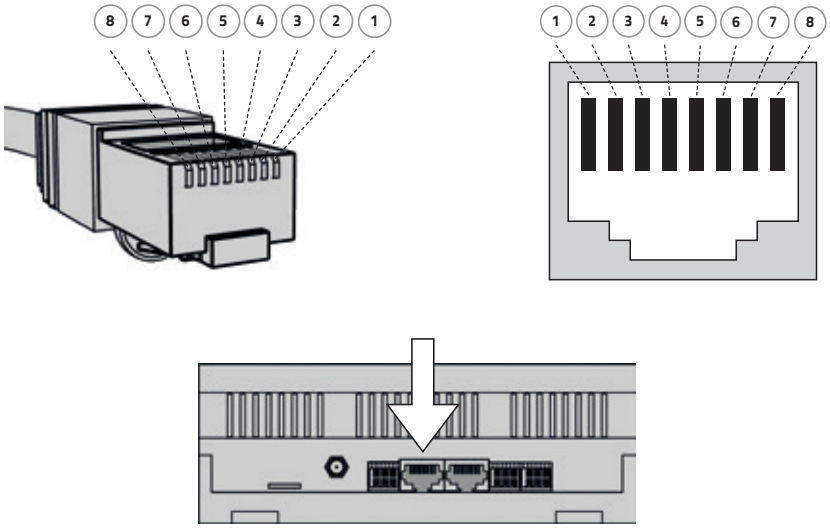
Um den Smart Energy Monitor mit einem drahtlosen Netzwerk zu verbinden, melden Sie sich zunächst im Gerät an (siehe Kapitel 8: "Menü") und gehen dann wie folgt vor:

Innerhalb des "Konfig WiFi"-Menüs bestätigen Sie die Auswahl Scannen mit Enter, sodass das Gerät nach drahtlosen Netzwerken in der Umgebung sucht. Die gefundenen Netzwerknamen werden angezeigt und können mit der Enter-Taste ausgewählt werden. Nachdem ein Netzwerk gewählt wurde muss im "Konfig WiFi"-Menü unter dem Punkt "Passwort" der Netzwerkschlüssel eingetragen werden. Nach Bestätigung des Passworts verbindet sich das Gerät und bezieht weitere Informationen automatisch über das Netzwerk. Wenn dies nicht erwünscht ist, gehen Sie bitte wie bei der LAN-Konfiguration vor.

7.5 CAN-Bus Schnitstelle

Die Belegung der CAN-Bus Schnittstelle kann den folgenden Abbildungen entnommen werden.

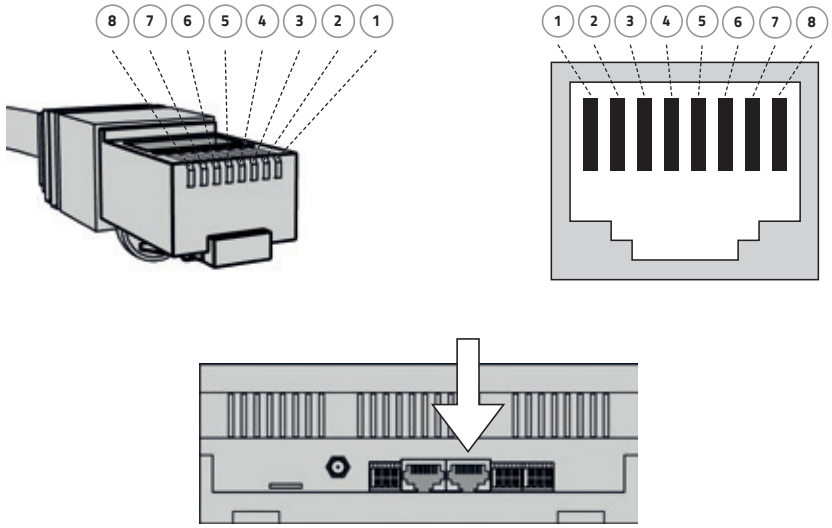
PIN	Function:
1	*n.c. (not connected)*
2	GND
3	*n.c.*
4	GND
5	GND
6	CAN-L
7	GND
8	CAN-H



7.6 RS-485 Schnitstelle

Die Belegung der RS-485 Schnitstelle kann den folgenden Abbildungen entnommen werden.

PIN	Function:
1	Rx / Tx - (RS-458 B)
2	GND
3	Rx / Tx + (RS-458 B)
4	GND
5	GND
6	*n.c.*
7	GND
8	*n.c.*



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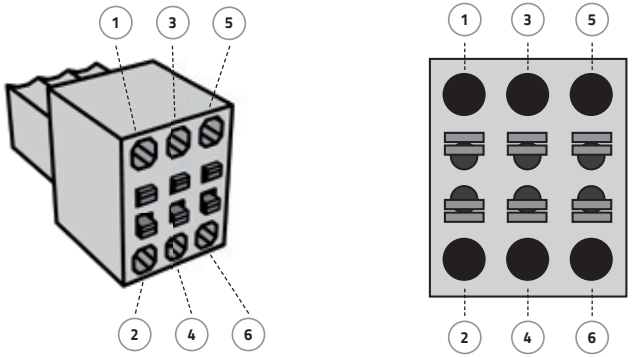
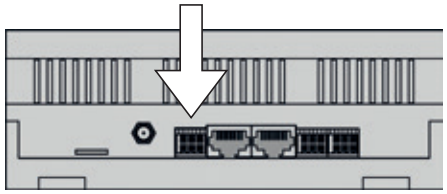
7.7 CAN-Bus / S0-Schnitstelle

Die Belegung der CAN-Bus / S0-Schnittstelle kann den folgenden Abbildungen entnommen werden.

PIN	Function:
1	S0+
2	S0-
3	CAN-L
4	GND
5	CAN-H
6	GND

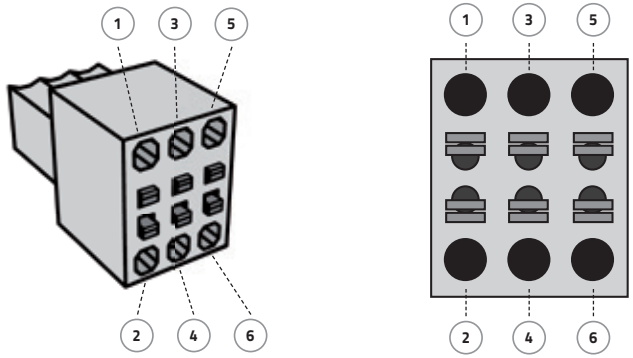


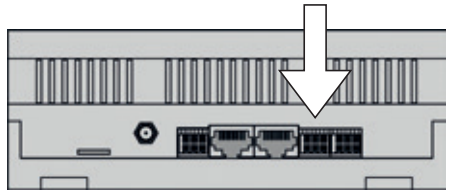


7.8 RS-485 Schnitstelle / Full Duplex

Die Belegung der RS-485 Schnitstelle / Full Duplex kann den folgenden Abbildung enentnommen werden.

PIN	Function:
1	Tx + (RS-458 A)
2	Rx - (RS-458 B)
3	Tx - (RS-458 A)
4	Rx + (RS-458 B)
5	GND
6	GND

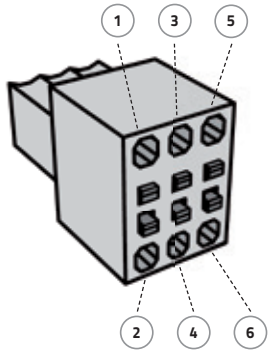


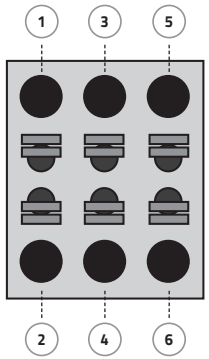


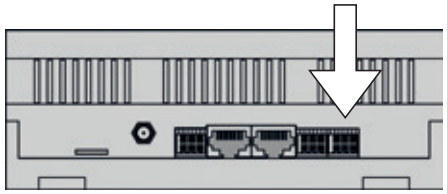
7.9 RS-485 Schnitstelle

Die Belegung der RS-485 Schnitstelle kann den folgenden Abbildungen entnommen werden.

PIN	Function:
1	Tx - (RS-458 / 1)
2	Tx + (RS-458 / 2)
3	Tx + (RS-458 / 1)
4	Tx - (RS-458 / 2)
5	GND
6	GND

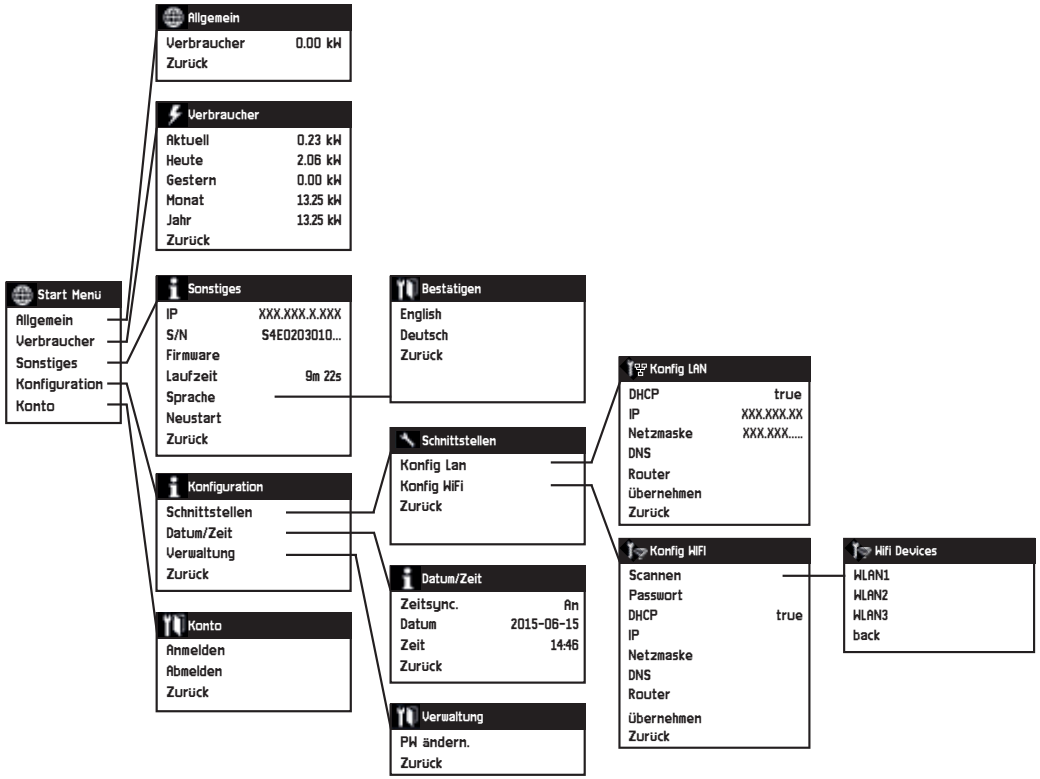






8. MENÜ

Smart Energy Monitor Menüführung (Deutsch)

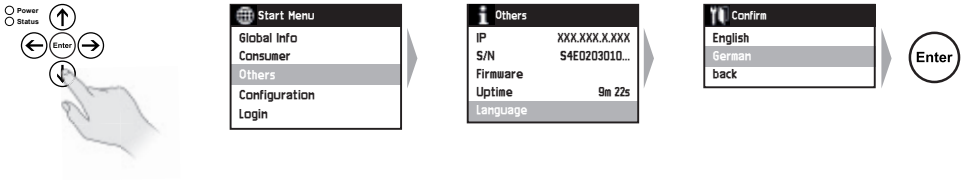


9. INBETRIEBNAHME

Es wird davon ausgegangen, dass das Gerät ordnungsgemäß angeschlossen und mit allen relevanten Komponenten verbunden ist.

9.1 Ändern der Systemsprache

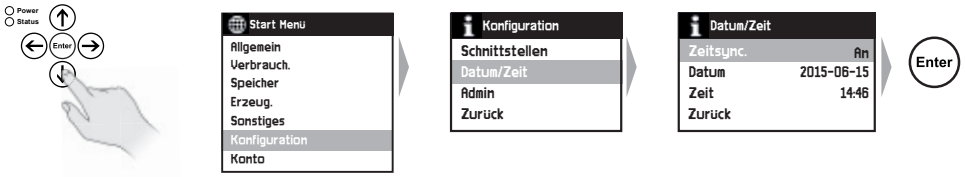
- Navigieren Sie aus dem Start Menü nach unten zum Menüpunkt „Sonstiges“ und bestätigen Sie mit „Enter“ (siehe Kapitel 8: "Menü").
- Innerhalb des geöffneten Menüs navigieren Sie wieder nach unten und wählen den Unterpunkt „Sprache“.
- Wählen Sie die gewünschte Sprache und bestätigen Sie mit „Enter“.



9.2 Einstellung von Datum und Uhrzeit

Die Datums-und Uhrzeiteinstellung entfällt beim Smart Energy Monitor, da dieser die Informationen aus dem Netzwerk, in dem er angeschlossen ist, bezieht. Die automatische Zeitsynchronisation kann dennoch bei Bedarf ausgeschaltet werden.

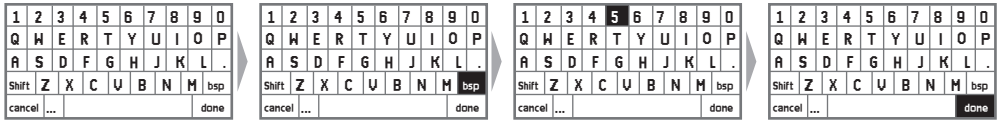
- Navigieren Sie aus dem Start Menü nach unten zum Menüpunkt „Konfiguration“ und bestätigen Sie mit „Enter“.
- Innerhalb des geöffneten Menüs navigieren Sie wieder nach unten und wählen den Unterpunkt „Datum/Zeit“.
- Bestätigen Sie „Zeitsynchronisation“ mit „Enter“ um diese ein bzw. auszuschalten.



DE

Nachdem die Zeitsynchronisation ausgeschaltet wurde kann das Datum und die Uhrzeit manuell eingestellt werden.

- Wählen Sie dazu die Unterpunkte Datum oder Zeit.
- Entfernen Sie mit der virtuellen Tastatur den Eintrag und geben Sie das gewünschte Datum bzw. die gewünschte Uhrzeit ein.
- Nachdem Sie den Eintrag geändert haben, bestätigen Sie Ihre Eingabe mit „done“.

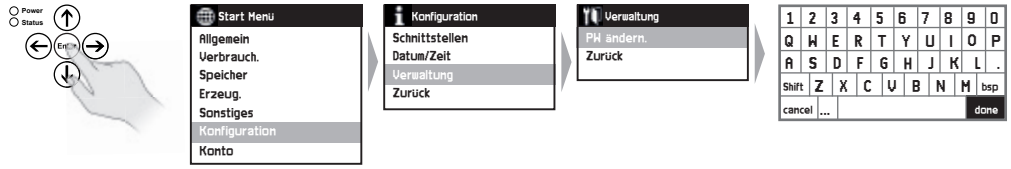


Sollten Sie Englisch als Sprache beibehalten, beachten Sie bitte die unterschiedlichen Separatoren. (Deutsch: ". " , Englisch: " / ")

9.3 Passwort vergeben

Im Auslieferungszustand ist das Gerät nicht mit einem Passwort versehen.
Ein Passwort richten Sie wie folgt ein:

- Navigieren Sie aus dem Start Menü nach unten zum Menüpunkt „Konfiguration“ und bestätigen Sie mit „Enter“.
- Innerhalb des geöffneten Menüs navigieren Sie wieder nach unten und wählen den Unterpunkt „Verwaltung“.
- Bestätigen Sie „PW ändern“ um ein Passwort zu vergeben bzw. zu ändern.
- Vergeben Sie mit Hilfe der virtuellen Tastatur ein beliebiges Passwort und bestätigen Sie auf „done“ mit „Enter“.



9.4 Allgemeine Information zur Einrichtung und Konfiguration der Geräte

Die Einrichtung unseres Systems ist denkbar einfach. Einige Punkte sollten aber beachtet werden. Im Folgenden möchten wir Ihnen einen kurzen Einblick in die generellen Funktionen geben.

Allgemeine Informationen zum Verständnis:

- Geräte sind „Messgeräte", oder je nach Version „Erzeuger"
- Jedes Messgerät / jeder Erzeuger kann mehrere Messkanäle besitzen
- Jedes Gerät hat eigene Metadaten (Ort, Typ, usw.)
- Jeder Messkanal hat eigene Metadaten. Wenn Sie z. B. mit einem „Messwandler" messen, ordnen Sie diesem Messwandler das Gerät zu, das Sie messen möchten (beispielsweise Waschmaschine oder Kühlaggregat „Typ X"). Somit repräsentiert ein Messwandler / Eingang eines Messgeräts einen anderen Verbraucher.

Die Einrichtung des Systems erfolgt in fünf Schritten:

1. Schnittstellen
Da der Monitor eine Vielzahl von Schnittstellen besitzt und der Einsatzzweck und die Belegung mit Messgeräten variabel ist, ist die Konfiguration vom Anwender vorzunehmen.
Hier verknüpft der Anwender die Hardware-Schnittstelle mit einem Gerät, welches ausgelesen werden soll. Der gerätespezifische Treiber wird ausgewählt und geladen. Einige Schnittstellen erlauben multiple Verknüpfungen, da diese nicht „exklusiv" sein müssen wie z. B. M-Bus oder Ethernet.

2. Geräte
Geräte hinzufügen
Nachdem die Treiber gestartet wurden, werden entsprechende Geräte an der Schnittstelle gesucht. Hier ist zu beachten, dass falls die Anzahl der Adressen zu hoch ist, die automatische Suchfunktion nicht funktioniert (eine Suche von beispielsweise 65.000 Adressen würde zu lange dauern). Die Adresse muss in diesem Fall manuell eingegeben werden.

Generic Geräte
Bei Geräten, die dem System nicht bekannt sind, ist ein Zwischenschritt nötig: Hier müssen die entsprechende Kategorisierung und das Datensatzformat konfiguriert werden.
Die Einheit der vom S0-Bus gemessenen Pulse muss im System hinterlegt werden. Hier kann die Kategorie (Elektrizität, Gas usw.) eingestellt werden. Außerdem muss spezifiziert werden, wie viele Pulse eine Einheit darstellen (bei Stromzählern: 1000 Pulse = 1 kWh; bei Wasserzählern: 800 Pulse = 1 m³). Diese Angaben entnehmen Sie bitte Ihrem Zähler.

Bei M-Bus verhält es sich ähnlich wie bei S0 Modul: Hier wird bei unbekannten Geräten die Kategorie eingerichtet und der Datensatz konfiguriert.

3. Metadaten
Die Metadaten sind besonders wichtig. Hier muss auf die korrekten Einträge geachtet werden, da die Messkanäle / Geräte später über die Metadaten gesucht werden. Je besser die Metadaten gepflegt sind, desto besser funktioniert die Suchfunktion und desto effizienter ist das System.
Hier ist besondere Sorgfalt geboten.

4. Gruppen
Im letzten Schritt wird das Messgerät in die dazugehörige Gruppe hinzugefügt. Wichtig ist, dass für jede Kategorie ein Master definiert werden kann. „Master" bedeutet, dass z. B. der gesamte Strombezug gemessen wird. Das gilt ebenso für Gas- und Wasserzähler. Auf diese Weise erkennt das System, welches Messgerät genutzt werden kann. Auf dem Dashboard des Gerätes wird bei Gesamtbezug immer der Master seiner Kategorie genommen.

Zusätzlich nutzen der Datenlogger und der Manager den Master, um einen schnellen Regelkreis zu bilden. Auf diese Weise wird die entsprechende Funktionalität gewährleistet.
(z. B: Dynamische 70 % Regelung beim Datenlogger oder Spitzenlastoptimierung beim Manager)

10. AKTUALISIERUNG DER FIRMWARE

Die Aktualisierung der Firmware erfolgt bei dem Smart Energy Monitor durch ein automatisches Update, wenn Sie das Gerät mit Ihrem Netzwerk verbunden haben. Weitere Informationen finden Sie dazu unter:
www.smart4energy.com

11. REINIGUNG

Gefahr eines Stromschlags!

ACHTUNG:
Es darf keine Flüssigkeit in das Gerät gelangen. Reinigen Sie es niemals mit einem nassen Tuch. Ziehen Sie vor dem Reinigen alle Stecker.

ACHTUNG:
Verwenden Sie keine lösungsmittelhaltigen Reinigungsmittel wie Benzin oder Verdünnung. Diese Mittel können die Oberfläche des Gehäuses beschädigen.

- **Trennen Sie das Gerät von jeglichen Stromquellen und entfernen Sie ggf. alle Verbindungskabel (Messwandler, USB...), bevor Sie es reinigen.**
- **Reinigen Sie das Gehäuse und das Display mit einem weichen, faserfreien Tuch. Bei stärkeren Verschmutzungen kann eine milde, lösungsmittelfreie Seifenlauge oder Spiritus verwendet werden.**
- **Die Folientastatur sollte von Verschmutzungen mit Hilfe eines weichen, faserfreien Tuchs befreit werden. Auch hier dürfen keine Lösungsmittel eingesetzt werden.**

12. WARTUNG

Das Gerät ist wartungsfrei. Bei Schäden, z.B. durch Transport und/oder Lagerung, dürfen keine Reparaturen durch Fremdpersonal vorgenommen werden. Beim Öffnen des Geräts erlischt der Gewährleistungsanspruch.

13. AUSSERBETRIEBNAHME

- **Trennen Sie das Gerät von der Stromversorgung.**
- **Entfernen Sie alle Kabel vom Gerät.**
- **Verpacken Sie das Gerät, die Kabel, Stecker und die Bedienungsanleitung vorzugsweise in der Originalverpackung.**
- **Lagern Sie das Gerät und alle Zubehörteile an einem trockenen und staubfreien Ort.**
- **Schützen Sie das Gerät vor Feuchtigkeit und Frost.**

14. ENTSORGUNG

ACHTUNG:
Werfen Sie das Gerät und die Zubehörteile keinesfalls in den normalen Hausmüll. Erkundigen Sie sich bei Ihrer Stadt- oder Gemeindeverwaltung nach Möglichkeiten einer umwelt- und sachgerechten Entsorgung des Geräts.

Das WEEE-Symbol auf dem Produkt oder seiner Verpackung weist darauf hin, dass es sich bei diesem Produkt um ein elektrisches oder elektronisches Gerät handelt. Entsorgen Sie dieses Gerät nicht über den Hausmüll, sondern bringen Sie es zu Ihrer örtlichen kommunalen Sammelstelle (Recycling-Hof). Durch Ihren Beitrag zur Entsorgung dieses Produktes schützen Sie die Umwelt und die Gesundheit Ihrer Mitmenschen.

Materialrecycling hilft, den Verbrauch von Rohstoffen zu verringern.
Helfen Sie mit, die Umwelt zu erhalten, in der wir leben!

Business Smart Energy Monitor

Typ: STANDARD, ADVANCED

ALLGEMEINE DATEN	
Netzspannung / Netzfrequenz:	Netzspannung: 85 V_{AC} – 265 V_{AC} / Netzfrequenz: 50 Hz – 60 Hz
Leistungsaufnahme:	typisch: 3,0 W / max: 10,0 W (Wirkleistung)
Temperaturbereich:	-10°C bis +45°C
Absicherung:	extern über Leitungsschutzschalter 10 A – 16 A (Auslösecharakteristik B)
Anschlussklemmen:	Aderquerschnitt von 0,5 mm^2 – 2,5 mm^2
Schutzart / Schutzklasse:	IP 20 / II
Montageort:	Schalt-, Zählerschrank / Wandmontage
Montageart* [4]:	Hutschienenmontage
Abmessungen:	Höhe 90 mm / Breite 160 mm / Tiefe 59 mm
Gewicht:	ca. 265 g
Farbe:	orange
ANSCHLÜSSE	
Eingänge:	6x digitale Eingänge, 2x analoge Eingänge
Ausgänge:	2x analoge Ausgänge
Schnittstellen:	1x GSM * [2], 1x WiFi, 1x Bluetooth, 1x Ethernet, 1x S0-Bus * [3], 2x USB, 1x PT-1000, 2x CAN-Bus, 4x RS485 (Abschlusswiderstand wählbar), 1x MicroSD-Kartenslot
SCHNITTSTELLENPROTOKOLLE	
Modbus:	Verbindungslizenzen für 5 Business Smart Energy Meter enthalten, Erweiterung auf bis zu 90 Verbindungslizenzen (90 Business Smart Energy Meter) möglich
MESSDATENAUSGABE	
Displayart:	2,4 Zoll / monochrom
Datenausgabe:	internes Display / Webanwendung
GARANTIE & SUPPORT	
Herstellergarantie:	2 Jahre Herstellergarantie
MITGELIEFERTES ZUBEHÖR	
Lieferumfang:	1x GSM-Antenne * [2], 1x WiFi-Antenne, diverse Stecker
Sonstiges:	Benutzerhandbuch (Deutsch / Englisch)
*OPTIONALES ZUBEHÖR * [1]*	
Produktergänzung:	Business Smart Energy Meter / Carlo Gavazzi EM 24
Funktionserweiterung:	Upgrade zum Business Smart Energy Datenlogger, -Manager

[1] nicht im Lieferumfang enthalten
[2] nur in der Ausstattungsvariante „Advanced"
[3] S0 Ausgangsspannung 3,3 VDC

[4] Gerät muss in einem Brandschutzgehäuse wie z.B. Schaltschrank installiert werden.

Home Smart Energy Monitor

Typ: STANDARD, ADVANCED

ALLGEMEINE DATEN	
Netzspannung / Netzfrequenz:	Netzspannung: 85 V_{AC} – 265 V_{AC} / Netzfrequenz: 50 Hz – 60 Hz
Leistungsaufnahme:	typisch: 3,0 W / max: 10,0 W (Wirkleistung)
Temperaturbereich:	-10°C bis +45°C
Absicherung:	extern über Leitungsschutzschalter 10 A – 16 A (Auslösecharakteristik B)
Anschlussklemmen:	Aderquerschnitt von 0,5 mm^2 – 2,5 mm^2
Schutzart / Schutzklasse:	IP 20 / II
Montageort:	Schalt-, Zählerschrank
Montageart* [4]:	Hutschienenmontage
Abmessungen:	Höhe 90 mm / Breite 160 mm / Tiefe 59 mm
Gewicht:	ca. 260 g
Farbe:	schwarz
ANSCHLÜSSE	
Eingänge:	6x digitale Eingänge, 2x analoge Eingänge
Ausgänge:	2x analoge Ausgänge
Schnittstellen:	1x GSM * [2], 1x WiFi, 1x Bluetooth, 1x Ethernet, 1x S0-Bus* [3], 2x USB, 1x PT-1000, 2x CAN-Bus, 4x RS485 (Abschlusswiderstand wählbar), 1x MicroSD-Kartenslot
SCHNITTSTELLENPROTOKOLLE	
Modbus:	1x Home Smart Energy Meter-Anbindung möglich * [1]
CAN-Bus:	1x Home Smart Energy Meter-Anbindung möglich * [1]
MESSDATENAUSGABE	
Displayart:	2,4 Zoll / monochrom
Datenausgabe:	internes Display / Webanwendung
GARANTIE & SUPPORT	
Herstellergarantie:	2 Jahre Herstellergarantie
MITGELIEFERTES ZUBEHÖR	
Lieferumfang:	1x GSM-Antenne * [2], 1x WiFi-Antenne, diverse Stecker
Sonstiges:	Benutzerhandbuch (Deutsch / Englisch)
*OPTIONALES ZUBEHÖR * [1]*	
Produktergänzung:	1x Home Smart Energy Meter / Carlo Gavazzi EM 24
Funktionserweiterung:	Upgrade zum Home Smart Energy Datenlogger, -Manager

[1] nicht im Lieferumfang enthalten
[2] GSM nur in der Ausstattungsvariante „Advanced"
[3] S0 Ausgangsspannung 3,3 VDC

[4] Gerät muss in einem Brandschutzgehäuse wie z.B. Schaltschrank installiert werden.

16. GEWÄHRLEISTUNG

Die Gewährleistung für den Smart Energy Monitor der LOKISA Smart Energy GmbH entspricht den gesetzlichen Bestimmungen zum Zeitpunkt des Erwerbs. Unbefugte Reparaturversuche führen zum Verlust der Gewährleistung.

17. RÜCKSENDUNG / RMA

Was ist eine RMA-Prozedur?
Sie können Ihr Gerät für Reparaturen mit Hilfe des sogenannten RMA-Verfahren (Return Merchandise Authorisation) an uns zurücksenden.
Bitte fordern Sie, bevor Sie das Gerät an uns versenden, eine RMA-Nummer an.

Bitte beachten Sie:
Ohne RMA-Nummer können wir keine Geräte annehmen.

Anfordern der RMA-Nummer

1. Laden Sie sich das RMA-Formular unter folgender Adresse von unserer Internetseite herunter: **www.smart4energy.com.**
2. Bitte füllen Sie das RMA-Formular sorgfältig aus und beachten Sie, dass ALLE Pflichtfelder auf jeden Fall ausgefüllt sein müssen!
3. Senden Sie uns das ausgefüllte Formular per Post oder E-Mail zurück (siehe Impressum: www.smart4energy.com).

Innerhalb der nächsten 3–5 Werktage erhalten Sie eine Bestätigung über den Eingang Ihres Formulars und Ihre RMA-Nummer.
Sie können die RMA-Nummer auch unter +49 (0) 2484 / 918 292 bei uns beantragen.
Halten Sie für das Gespräch mit einem unserer Mitarbeiter bitte folgende Angaben bereit:

- Ihre persönlichen Daten (Name, Adresse, Telefonnummer).
- Die Daten des Gerätes (Bezeichnung, Typ, Seriennummer).
- Den Grund der Rücksendung und eine kurze Beschreibung des Defektes.

Versand der Geräte
Ihre Sendung muss folgende Informationen enthalten:

- RMA-Nummer, die Sie von uns erhalten haben.
- Ihre persönlichen Daten (Name, Adresse, Telefonnummer).
- Die Daten des Gerätes (Bezeichnung, Typ, Seriennummer).
- Den Grund der Rücksendung und eine kurze Beschreibung des Defektes.

Hinweise zum Versand
Verpacken Sie das Gerät stets sorgfältig (vorzugsweise Originalkarton). Zubehör (Messwandler, Stecker oder Handbuch) legen Sie bitte nur nach Absprache bei. Sobald das Gerät bei uns angekommen ist, werden wir uns um eine schnelle Bearbeitung des Vorgangs bemühen.

Sollten Sie Fragen haben oder weitere Informationen benötigen, dann kontaktieren Sie uns unter der Rufnummer **+49 (0) 2484 / 918 292** oder per E-Mail: **rma@smart4energy.com**.

18. HAFTUNGSAUSSCHLUSS

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- Betreiben des Produktes unter fehlerhaften Sicherheits- und Schutzbedingungen.
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LOKISA Smart Energy GmbH
Trierer Straße 53a
53894 Mechernich / Germany

Service Hotline: +49 (0) 2484 / 918 292
E-Mail: info@smart4energy.com
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These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

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b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

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END OF TERMS AND CONDITIONS

EG-Konformitätserklärung

gemäß der EG-Richtlinie 2004/108/EG (elektromagnetische Verträglichkeit) vom 15. Dezember 2004

Hiermit erklären wir, dass das nachstehend bezeichnete Gerät in seiner Konzeption und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie 2004/108/EG entspricht. Bei einer mit uns nicht abgestimmten Änderung des Gerätes verliert diese Erklärung ihre Gültigkeit.

Hersteller: [1)] LOKISA Smart Energy GmbH,
Trierer Straße 53a,
D-53894 Mechernich

Bescheibung des Gerätes:

Typenbezeichnung:
Smart Energy Monitor „Standard“
Smart Energy Monitor „Advanced“
Smart Energy Datenlogger „Standard“
Smart Energy Datenlogger „Advanced“
Smart Energy Manager „Standard“
Smart Energy Manager „Advanced“

Es wird die Übereinstimmung mit weiteren, ebenfalls für das Produkt geltenden EG-Richtlinien erklärt:

Niederspannung EG-Richtlinie (2006/95/EG) vom 12. Dezember 2006
EN 301 489-1 V1.9.2 (EN 55022, EN 61000-4-2, EN 61000-4-3,
EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11,
EN 61000-3-2, EN 61000-3-3, EN 61000-3-11, ISO 7637-2)
EN 301 489-7 V1.3.1
EN 301 489-17 V2.2.1

Information technology equipment –Safety – IEC 60950-1 © 2005
EN 62311:2008, IEC 60950-1:2005 + A1:2009+ A2:2013,
EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011+ AC:2011 + A2:2013

Mechernich, 18.08.2015
LOKISA Smart Energy GmbH

Christian Salewski
Geschäftsführer

[1)] Vollständige Anschrift des Herstellers

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GB

1. FOREWORD

Dear Customer,

Thank you for choosing the Smart Energy Monitor.
Please read this User Guide of the Smart Energy Monitor carefully before using the device. It will provide you with assistance in using the Smart Energy Monitor

- **for the intended purpose,**
- **safely and**
- **to your advantage.**

Anyone

- **connecting,**
- **operating,**
- **cleaning or**
- **disposing of**

the Smart Energy Monitor must have read this User Guide completely.
Please always keep the Guide near to the device.

2. INTRODUCTION

This documentation provides support to electricians and users in the assembly, commissioning and configuration of the Smart Energy Monitor.
The aim is to individually adjust the Smart Energy Monitor to the local installation and personal requirements.

The Smart Energy Monitor is a tool with which the active and reactive power measured by the Energy Meter can be visualised.

The embedded software on the Smart Energy Monitor itself is constantly improved and extended. The online updates may mean that configuration menus alter in terms of their design and handling. Functions may also be added or deleted.

The software version of the Smart Energy Monitor to which this documentation applies is stated on the last page.

3. SYMBOLS USED

The following types of safety information and general notices are used in this Guide:

	Warning of general danger
	Warning of dangerous electric voltage
	Read User Guide before use
	General information
	Electrostatic-sensitive device ESD
	Disposal notice
	CE label

4. IMPORTANT INFORMATION

Additional documents are applicable in connection with this User Guide. No liability is assumed for any damage sustained by failure to observe these instructions.

Co-applicable documents:
All operating instructions enclosed with the components for your installation must also be observed when operating the entire system. This will primarily include the manufacturer's operating instructions for the individual components.

The CE label documents that the Smart Energy Monitor satisfies the requirements stipulated by the European Community for the attachment of this label. Old electrical and electronic devices frequently contain valuable materials. An old device should not therefore be disposed of with residual household waste. Take the device to a municipal collection point for electrical scrap.

First read the following safety information before putting the device into operation:

4.1 General safety information

Observe all operating and safety information in this Guide when operating the device. Failure to do so can cause damage to the device and represent a hazard to individuals. This safety information applies in the Federal Republic of Germany. The pertinent national rules and regulations must be observed when using the device in other countries.

4.1.1 Intended use

The Smart Energy Monitor has been manufactured in accordance with the state of the art and the recognised safety regulations. Nevertheless, the device or other property may be impaired if used incorrectly or not for the intended purpose.

The Smart Energy Monitor is used to display consumption within an electrical installation. It may be connected exclusively with the devices intended for consumption measurement. Any other use or any use going beyond this is viewed as not for the intended purpose. The manufacturer is not liable for any resultant damage here. The operator bears the risk exclusively. Use the supplied accessories only for the purpose described in this User Guide. In addition, intended use also covers the heeding of the user and installation guide and of all further co-applicable documents.

Observe all information in this User Guide, particularly the safety information. Any other use is viewed as not for the intended purpose and may lead to property damage or even personal injury.

No liability is assumed for damage caused by a use of the device other than for its intended purpose.

4.1.2 Installation by qualified electrician

The Smart Energy Monitor may only be installed by a recognised electrician. The electrician will also assume responsibility for the correct installation and putting into service.

4.1.3 Avoiding physical injury

Observe all safety information attached to the packaging and the device when handling the Smart Energy Monitor. Before putting into operation and regularly during operation, check that the device and the accessories are not damaged. In cases of doubt, consult an electrician about the perfect condition of the technical parts. If the Smart Energy Monitor is damaged or if repairs are necessary, have them seen to exclusively by authorised persons.

Do not open the Smart Energy Monitor! Removing or damaging the enclosure may expose energised parts and impair the function of the device. This will also cancel the warranty!

4.1.4 Avoiding damage to the Smart Energy Monitor

The Smart Energy Monitor has the type of protection IP20 and is exclusively suitable for installation in dry, dust-free indoor areas. Protect the device from dust, humidity, aggressive substances and vapours. The ambient temperature must be between -10°C and +45°C.

Do not touch any electronic components or connections in the Smart Energy Monitor because this can cause damage or destruction. Earth yourself before working on the device.

ATTENTION:
Incorrect connection can destroy the device .

If there's damage or destruction on Smart Energy Monitor this is to take out of service immediately by a specialist. Only operate the Smart Energy Monitor if the device is in a technically perfect condition. Always consult a qualified electrician if the device shows error messages.

4.2 Information on use

ATTENTION:
The device may only be operated in the public grid.
Do not open the device. Danger to life from electric shock exists!
Incorrectly wiring the connections can lead to the destruction of the device.

Handle the device carefully.

- **Do not expose it to excessively high humidity.**
- **The display may be damaged by mechanical impact.**
- **The admissible operating voltages are provided in the technical datasheet.**

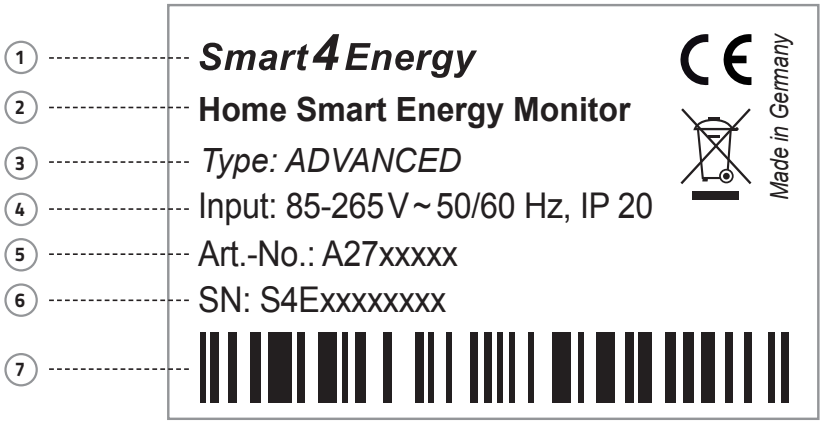
Do not put the device into operation

- **if it has visible damage;**
- **if there are lose parts in the device, or**
- **if it has been stored outdoors or in damp rooms for a lengthy period of time.**

4.3 Packaging

Please keep the packaging for any later transportation (removal, repair).
The original packing is best suited to protect your Smart Energy Monitor from any damage.

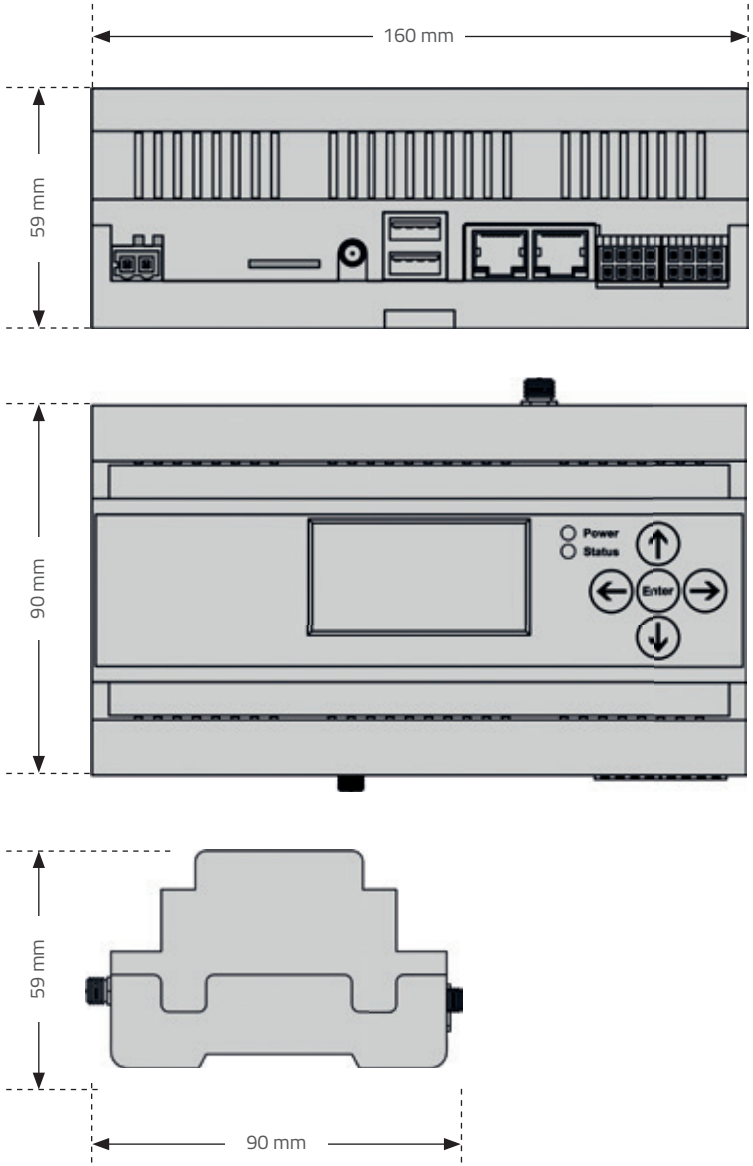
5.1 Product label



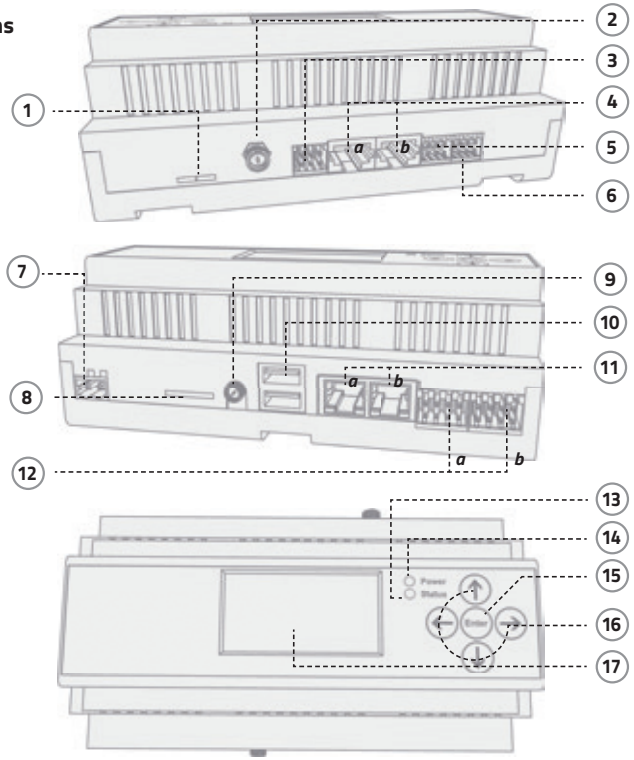
Exemplary illustration

Nr.	Description
1	Brand
2	Designation
3	Type
4	Technical information
5	Article number
6	Series number
7	Barcode

5.2 Dimensions



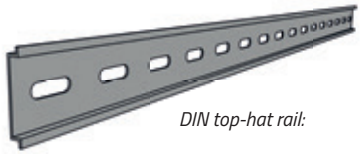
5.3 Connections



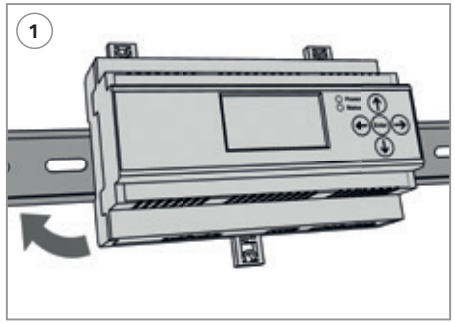
Nr.		Description:
1	SD card slot	Use a commercially available mini SD card here
2	WiFi antenna connection	Connection of WiFi antenna for data transmission by W-LAN
3	Bus interface	Interface for S0 bus (1 x) and CAN bus (1 x)
4a	RJ-45 jack	Interface for CAN bus (1 x)
4b	RJ-45 jack	Interface for RS485 (1 x semi-duplex)
5	RJ-45 jack	Interface for RS485 (1 x full-duplex)
6	RS485 interface	Interface for RS485 (2 x semi-duplex)
7	Power jack	Mains connection jack L & N (230 VAC 50 Hz – 60 Hz)
8	SIM card slot	Use a commercially available mini SD card here
9	GSM antenna connection	Connection of GSM antenna for data transmission by GSM (mobile radio)
10	USB port	USB 1 and USB 2
11a	Ethernet	Ethernet 1
11b	Ethernet	Ethernet 2
12a	Analogue interfaces	Analogue output (2 x), analogue input (2 x), PT 1000 connection (1 x)
12b	Digital interfaces	Digital outputs (6 x)
13	Status LED	signalises activity, e.g. access to memory etc.
14	Power LED	Shows readiness for operation
15	Enter key	Confirm selection
16	Cursor pad	Menu navigation, program forward or back (← →), program up or down (↑ ↓)
17	LCD display	Display of menu

6. INSTALLATION

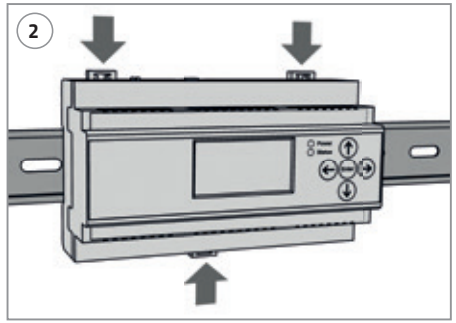
6.1 Installation on DIN top-hat rail*



DIN top-hat rail:



Position the device on the top-hat rail as shown in the illustration.

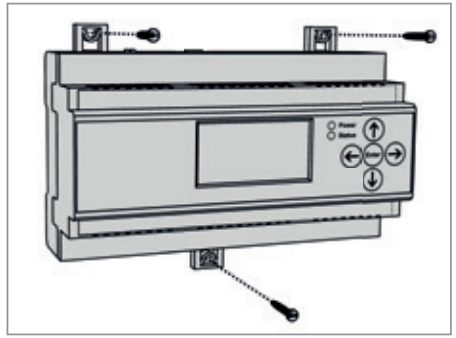


Fix the device using the top-hat rail retaining clip.

6.2 Alternative installation*

The Smart Energy Monitor can be installed by using the integrated top-hat rail retaining clip as shown on the illustration.

However, we recommend that installation of the Smart Energy Monitor be made on a separate DIN rail. (6.1)

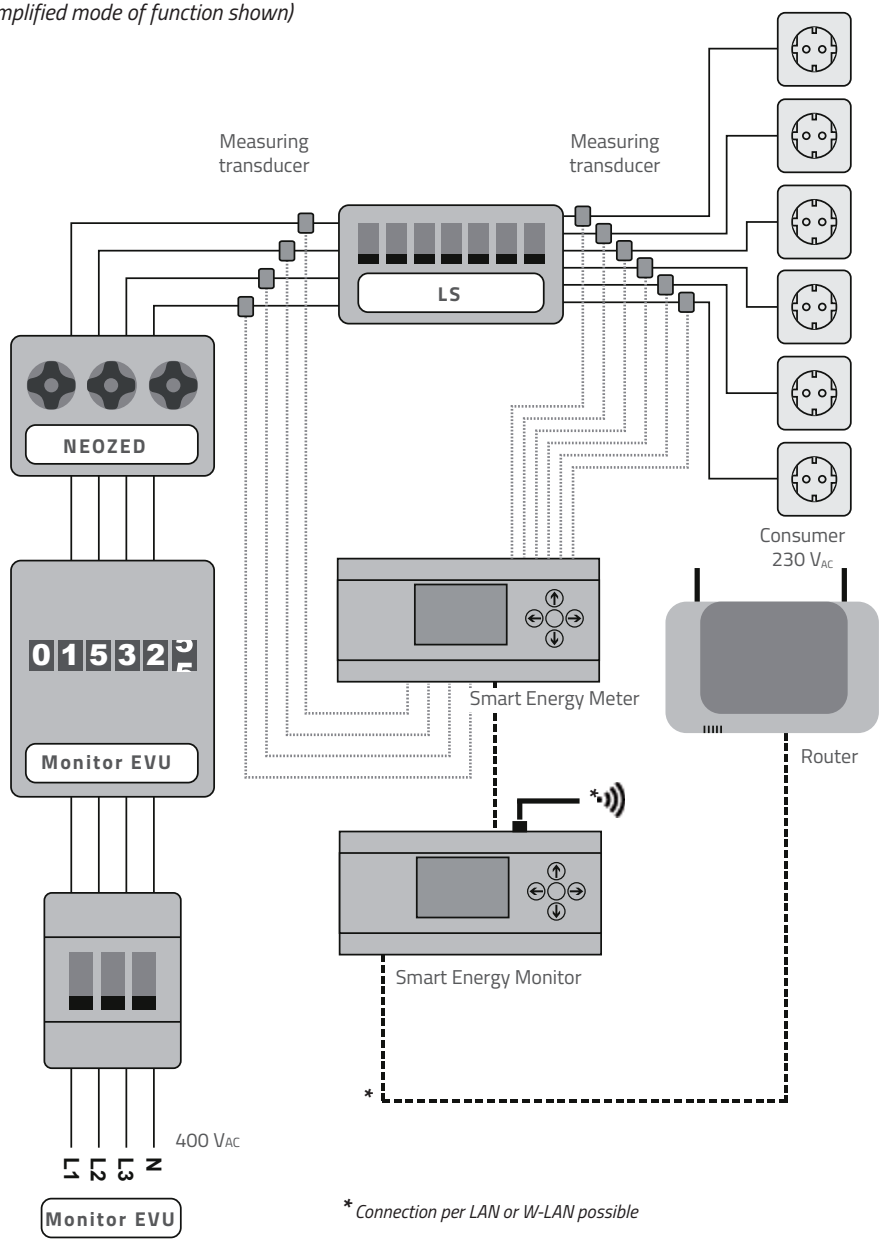


* *Device must be installed in a fire protection housing like control cabinet.*

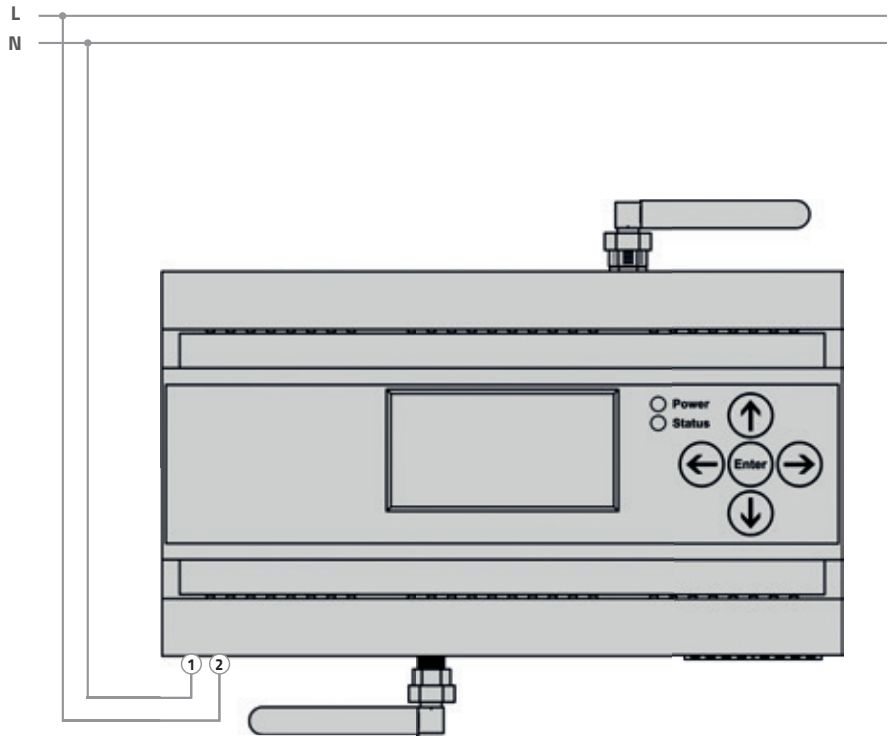
7. CONNECTION DIAGRAMS

7.1 Smart Energy Monitor connection diagram

(simplified mode of function shown)



7.2 Power supply / Connection diagram



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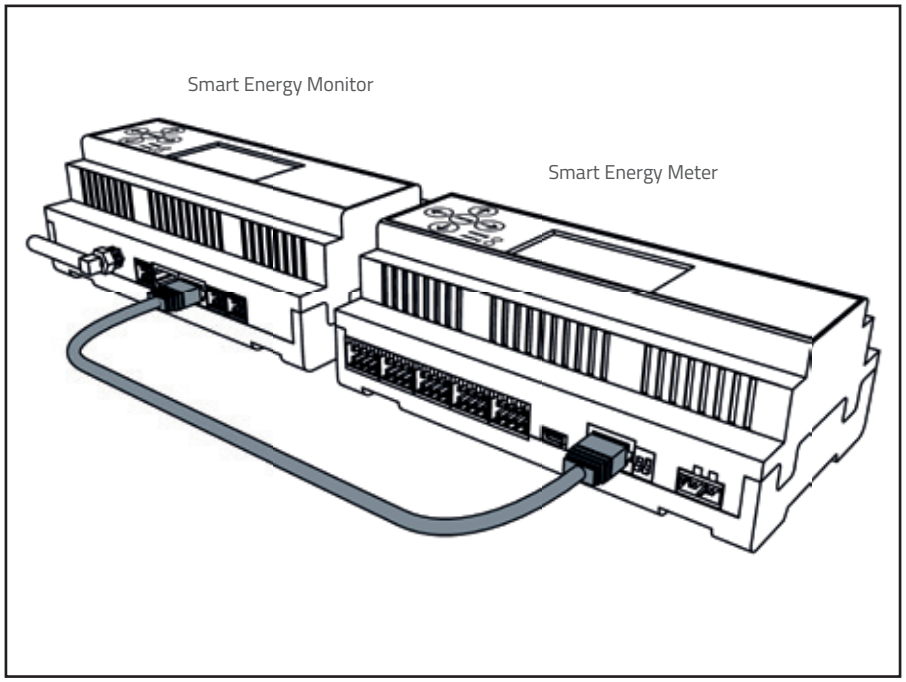
7.3 Networking the devices

Connection between Monitor and Meter

The Monitor is connected to the Meter by way of an RS485 cable. The collected data of the Meter are transferred to the Monitor in this way.

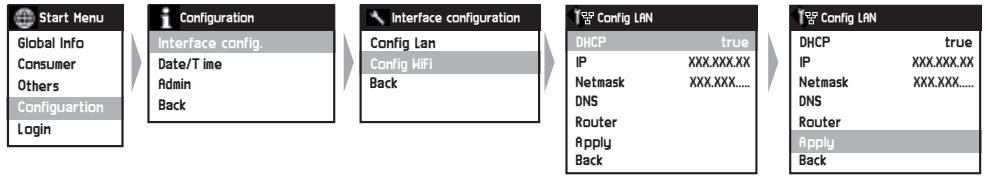


7.4 Network configuration

LAN configuration

No configuration is necessary with a hard wired network with a DHCP server because the Monitor obtains all necessary information from the network.
The configuration can be altered manually but this may lead to malfunction.

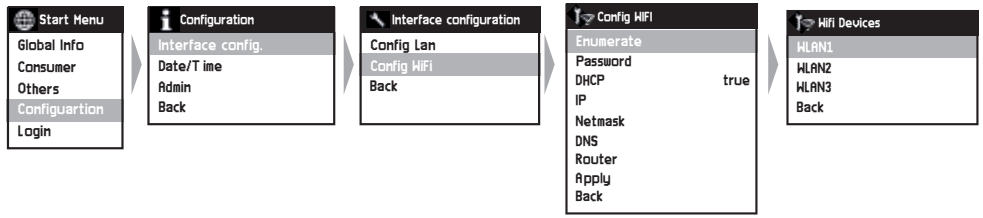
In order to change the configuration data of the LAN connection, first log in to the device (see Chapter 8: Menu) and then proceed as follows:



To ensure that the information is no longer obtained automatically from the network, the DHCP setting must be altered by pressing the Enter key to confirm “true” or “false”.
After this all LAN settings can be altered manually using the virtual keypad.
After the required changes have been made, the selection “Accept” must be confirmed with Enter.

WLAN configuration

In order to connect the Smart Energy Monitor with a wireless network, first log in to the device (see Chapter 8: Menu) and proceed as follows:

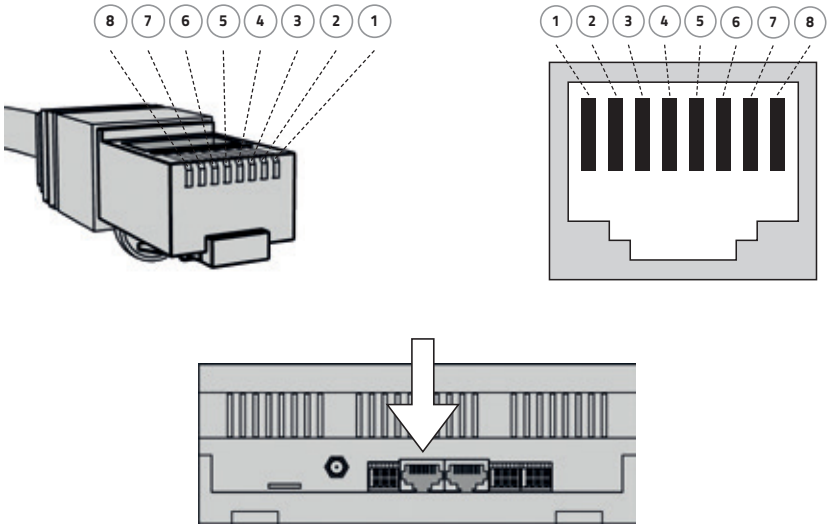


Within the "Config WiFi" menu confirm the “Scan” selection with Enter so that the device searches for wireless networks in the surrounding area. The names of the networks found are displayed and can be selected with the Enter key. After a network has been selected, the network key must be entered in the "Config WiFi" menu under the “Password” option. After confirmation of the password, the device connects and automatically obtains further information via the network. If this is not required, please proceed as for the LAN configuration.

7.5 CAN bus interface

The following figures show the assignment of the CAN bus interface.

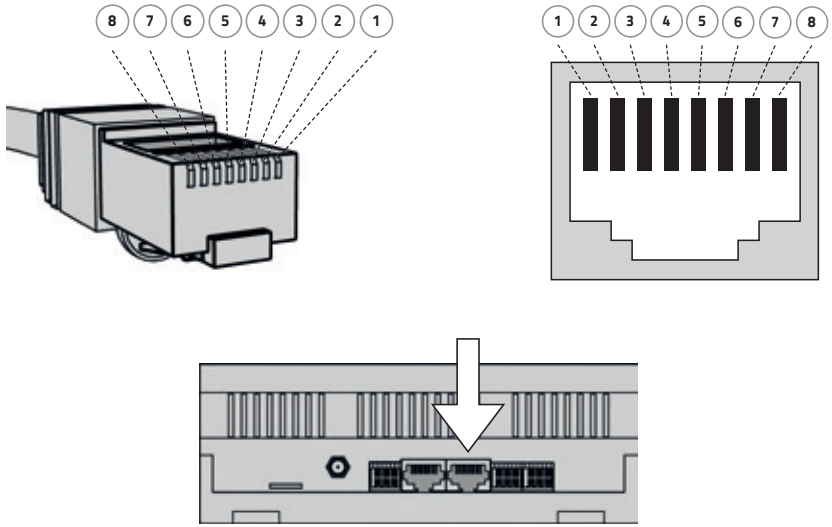
PIN	Function:
1	*n.c. (not connected)*
2	GND
3	*n.c.*
4	GND
5	GND
6	CAN-L
7	GND
8	CAN-H



7.6 RS-485 interface

The following figures show the assignment of the RS-485 interface.

PIN	Function:
1	Rx / Tx - (RS-458 B)
2	GND
3	Rx / Tx + (RS-458 B)
4	GND
5	GND
6	*n.c.*
7	GND
8	*n.c.*



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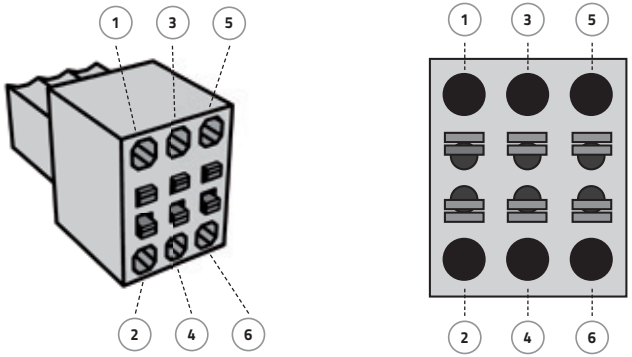
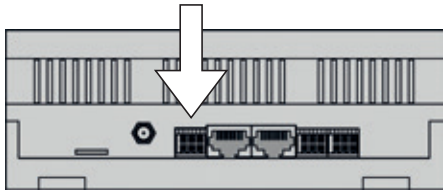
7.7 CAN-Bus / S0 interface

The following figures show the assignment of the CAN-Bus / S0 interface

PIN	Function:
1	S0+
2	S0-
3	CAN-L
4	GND
5	CAN-H
6	GND

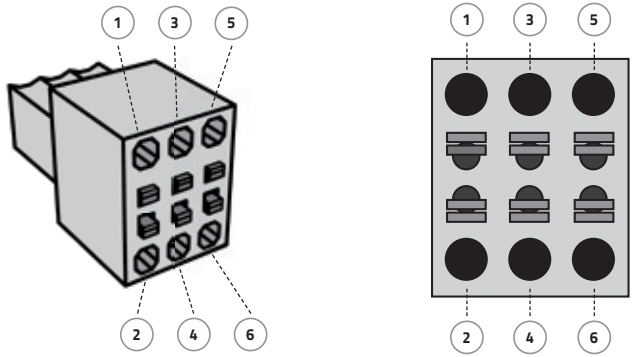


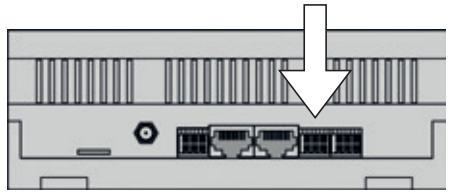


7.8 RS-485 interface / Full Duplex

The following figures show the assignment of the RS-485 interface / Full Duplex

PIN	Function:
1	Tx + (RS-458 A)
2	Rx - (RS-458 B)
3	Tx - (RS-458 A)
4	Rx + (RS-458 B)
5	GND
6	GND



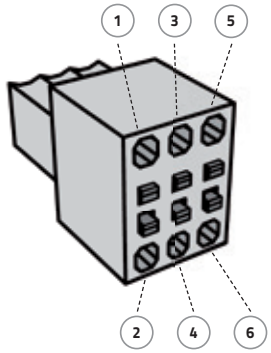


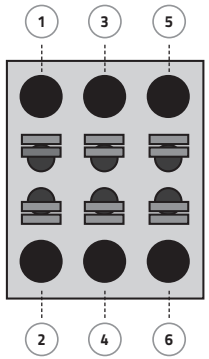
GB

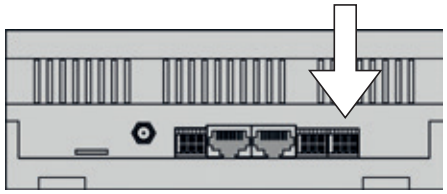
7.9 RS-485 interface

The following figures show the assignment of the RS-485 interface.

PIN	Function:
1	Tx - (RS-458 / 1)
2	Tx + (RS-458 / 2)
3	Tx + (RS-458 / 1)
4	Tx - (RS-458 / 2)
5	GND
6	GND

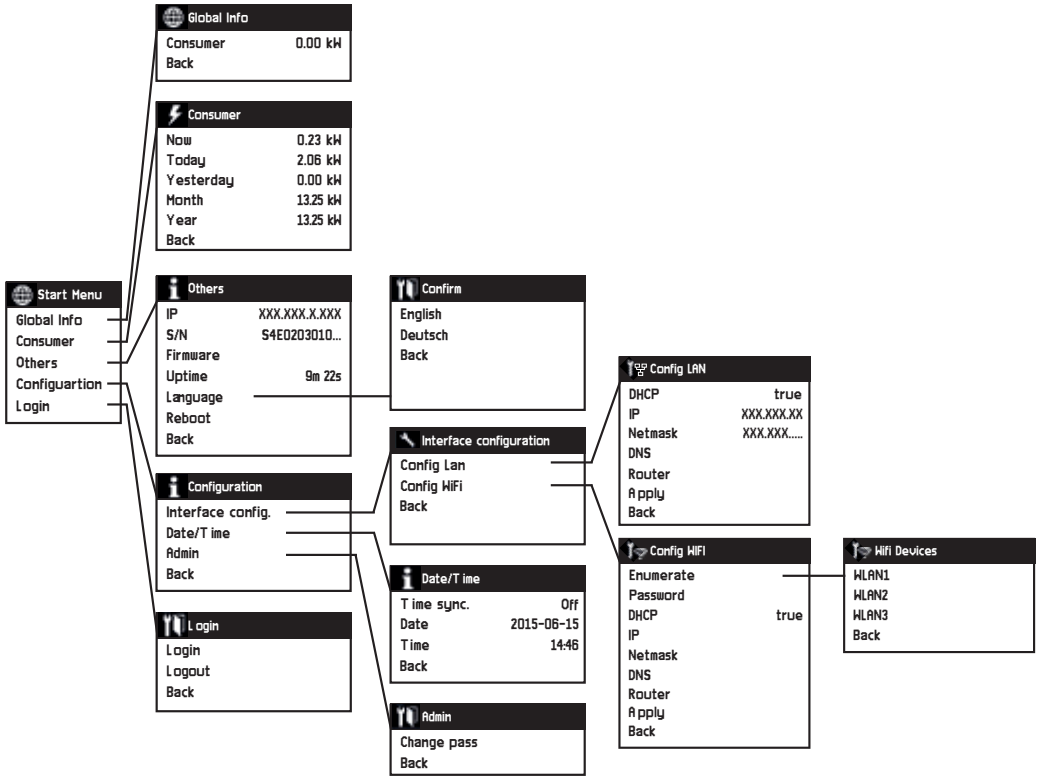






8. MENU

8.1 Smart Energy Monitor menu navigation (English)

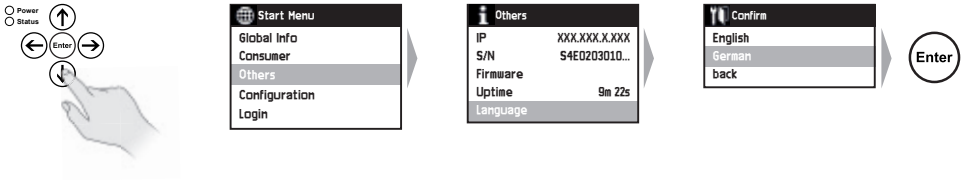


9. PUTTING INTO OPERATION

It is assumed that the device is correctly connected and linked with all relevant components.

9.1 Changing the system language

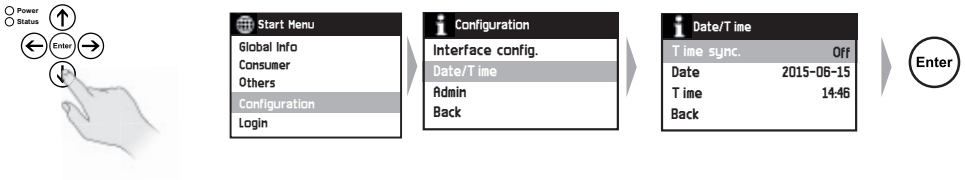
▪ Navigate down from the start view to the menu option “Other” and confirm with Enter (see Chapter 8: Menu).
▪ Within the open menu navigate down again and select “Language”.
▪ Select the required language and confirm with Enter.



9.2 Setting the date and time

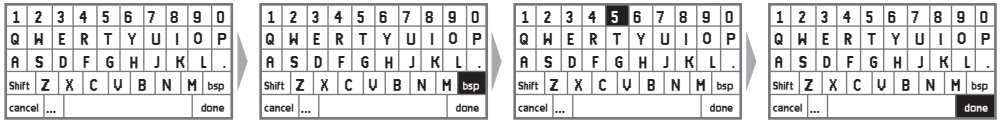
It is not necessary to set the data and time with the Smart Energy Monitor because it obtains information from the network with which it is connected. The automatic time synchronisation can be switched off nevertheless if required.

▪ Navigate down from the start menu to the “Configuration” option and confirm with Enter.
▪ Within the open menu navigate down again and select “Date/time”.
▪ Confirm the “Time synchronisation” with Enter to switch it on and off.



After the time synchronisation has been switched off, the date and time can be set manually.

▪ For this purpose, select the date or time options.
▪ Using the virtual keypad, delete the entry and enter the desired date and time.
▪ After you have altered the entry, confirm with “done”.

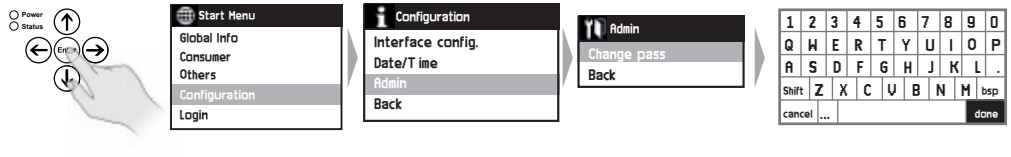


If you keep English as the language, please remember the different separators (German: " . ", English: " / ").

9.3 Assigning a password

On delivery the device does not have a password.
A password may be set up as follows:

▪ Navigate down from the start menu to the “Configuration” option and confirm with Enter.
▪ Within the open menu navigate down again and select “Administration”.
▪ Confirm “Change PW” in order to assign or change a password.
▪ Assign a password using the virtual keypad and press Enter to confirm “done”.



9.4 General information on installation and configuration of the devices

The konfiguration of our system is very simple. However, some points should be noted.
In the following we want to give you a brief insight into the general functions.

General information to understand:

- Device are "Meters" or "producer", depending on the version
- Each meter / each producer may have several measurement channels
- Each unit has its own metadata (location, type, etc.)
- Each measurement channel has its own metadata.

For example: If you are measuring with a "transducer", it is assigned to the device that you want to measure (for example, washing machine or refrigerator "type X"). Thus, a transducer / input of an instrument represents a different consumer.

The configuration of the system is done in five steps:

1. Interfaces
As the monitor has a plurality of interfaces and the application and the availability of measuring instruments is variable, the configuration is done by the user.
Here, the user links the hardware interface with a device which is to be read out. The device-specific driver is selected and loaded. Some interfaces allow multiple threads, because they do not have to be "exclusive", such as M-Bus or Ethernet.

2. Equipment
Add device
After the drivers have been loaded, corresponding devices at the interface are searched
It should be noted that if the number of addresses is too high, the automatic search function does not work (e.g. searching 65,000 addresses would take too long). In this case the address must be entered manually.

Generic Devices
For devices that are not known to the system, an intermediate step is necessary: Here the appropriate categorization and the record format must be configured.
The unit measured by the S0-Bus Pulse must be stored in the system. Here the categories (electricity, gas, etc.) can be set. It should also be specified how many pulses represent one unit (for electricity meters: 1000 pulses = 1 kWh; for water meters: 800 pulses = 1 m³).
For further details, please refer to your meter. M-bus is similar to S0 module: For unknown devices, the category is set up and the record is configured.

3. Metadata
The metadata are particularly important. Attention must be paid to the correct entries, as the measurement channels / devices are searched on the basis of metadata. The better the metadata is kept, the better the search and the more efficient the system.
Special care should be exercised.

4. Groups
In the final step, the meter will be added in the corresponding group. It is important that for each category a master can be defined. "Master" means that the entire electricity procurement is measured. The same applies to gas and water meters. So the system detects which measuring device can be used. On the device´s dashboard under the item "total reference" the master of the category is always taken.

In addition, the data logger and the managers use the Master to buid a fast control circuit. In this way, the corresponding functionality is ensured.
(For example: Dynamic 70% control of data logger or peak demand management to the Manager)

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10. UPDATING THE FIRMWARE

Firmware in the Smart Energy Monitor is updated by an automatic update once you have connected your device to your network. Further information is available at:
www.smart4energy.com

11. CLEANING

Danger of electric shock!

ATTENTION:
No liquid may penetrate the device. Never clean it with a wet cloth. Pull all plugs before cleaning.

ATTENTION:
Do not use any cleaning agents which contain solvents such as petrol or thinner. These agents may damage the surface of the enclosure.

▪ Disconnect the device from all power sources and remove all connecting cables (measuring transducers, USB...) before cleaning.

▪ Clean the enclosure and the display using a soft fibre-free cloth. For more stubborn dirt, a mild solvent-free soapy solution or spirit may be used.

▪ The membrane keypad should be cleaned using a soft fibre-free cloth. No solvents may be used here.

12. MAINTENANCE

The device is maintenance-free. If the device is damaged, e.g. through transport and/or storage, repairs may not be made by outside staff. The warranty expires if the device is opened.

13. DECOMMISSIONING

▪ Separate the device from the power supply.
▪ Remove all cables from the device.
▪ Place the device, the cables, plugs, transducers and the User Guide in the original package if possible.
▪ Store the device and all accessories in a dry and dust-free location.
▪ Protect the device from humidity and frost.

14. DISPOSAL

WARNING:
Never throw the device and the accessories into the normal household refuse. Find out about the possibilities of an environmentally compatible and correct disposal of the device from your local council.

The WEEE symbol on the product and its packaging indicates that this product is an electrical or electronic device. Do not dispose of this device in household refuse but take it to your local municipal collection point. By making your contribution to the disposal of this product, you protect the environment and the health of fellow human beings.

Material recycling helps to reduce the consumption of raw materials.
Help to maintain the environment in which we live!

15. TECHNICAL DATA

Business Smart Energy Monitor

Type: STANDARD, ADVANCED

GENERAL DATA	
Mains voltage / mains frequency:	**Mains voltage: 85 V_{AC} – 265 V_{AC} / mains frequency: 50 Hz – 60 Hz**
Power consumption:	**Typical: 3,0 W / max: 10,0 W (active power)**
Temperature range:	**-10°C bis +45°C**
Protection:	**External via circuit breake 10 A – 16 A (tripping characteristic B)**
Terminals:	**Cross-section from 0,5 mm² – 2,5 mm²**
Type of protection / safety class:	**IP 20 / II**
Installation site:	**Switch cabinet/meter box**
Installation type*⁴:	**top hat rail installation**
Dimensions:	**Height 90 mm / Width 160 mm / Depth 59 mm**
Weight:	**Approx. 265g**
Colour:	**orange**
CONNECTIONS	
Inputs:	**6x digital inputs, 2x analog inputs**
Outputs:	**2x analog outputs**
Interfaces:	**1x GSM *², 1x WiFi, 1x Bluetooth, 1x Ethernet, 1x S0-Bus*³, 2x USB, 1x PT-1000, 2x CAN-Bus, 4x RS485 (terminal resistor selectable), 1x MicroSD card slot**
INTERFACE PROTOCOLS	
Modbus:	**Connection licences for 5 Business Smart Energy Meter included, extension to up to 90 connection licences (90 Business Smart Energy Meters) possible**
MEASUREMENT DATA OUTPUT	
Display type:	**2,4 inch / monochrome**
Data output:	**Internal display / web application**
WARRANTY & SUPPORT	
Manufacturer's warranty:	**Manufacturer's 2-year warranty**
SUPPLIED ACCESSORIES	
Scope of delivery:	**1x GSM antenna *², 1x WiFi antenna, various plugs**
Others:	**User Manual (German / English)**
OPTIONAL ACCESSORIES *¹	
Product supplement:	**1x Home Smart Energy Meter / Carlo Gavazzi EM 24**
Functional extension:	**Upgrade to Home Smart Energy Data Logger, -Manager**

*¹ not included in the scope of delivery
*² GSM in the "Advanced" version only
*³ S0 output voltage 3,3 VDC

*⁴ Device must be installed in a fire protection housing like control cabinet.

Home Smart Energy Monitor

Type: STANDARD, ADVANCED

GENERAL DATA	
Mains voltage / mains frequency:	**85 V_{AC} – 265 V_{AC} / 50 Hz – 60 Hz**
Power consumption:	**Typical: 3,0 W / max: 10,0 W (active power)**
Temperature range:	**-10°C bis +45°C**
Protection:	**External via circuit breaker 10 A – 16 A (tripping characteristic B)**
Terminals:	**Core cross-section from 0,5 mm² – 2,5 mm²**
Type of protection / safety class:	**IP 20 / II**
Installation site:	**Switch cabinet / meter box**
Installation type*⁴:	**top hat rail installation**
Dimensions:	**Height 90 mm / Width 160 mm / Depth 59 mm**
Weight:	**Approx. 260 g**
Colour:	**black**
CONNECTIONS	
Inputs:	**6x digital inputs, 2x analog inputs**
Outputs:	**2x analog outputs**
Interfaces:	**1x GSM *², 1x WiFi, 1x Bluetooth, 1x Ethernet, 1x S0-Bus*³, 2x USB, 1x PT-1000, 2x CAN-Bus, 4x RS485 (terminal resistor selectable), 1x MicroSD card slot**
INTERFACE PROTOCOLS	
Modbus:	**1x Home Smart Energy Meter connection possible *¹**
CAN-Bus:	**1x Home Smart Energy Meter connection possible *¹**
MEASUREMENT DATA OUTPUT	
Display type:	**2,4 inch / monochrome**
Data output:	**Internal display / web application**
WARRANTY & SUPPORT	
Manufacturer's warranty:	**Manufacturer's 2-year warranty**
SUPPLIED ACCESSORIES	
Scope of delivery:	**1x GSM antenna *², 1x WiFi antenna, various plugs**
Others:	**User Manual (German / English)**
OPTIONAL ACCESSORIES *¹	
Product supplement:	**1x Home Smart Energy Meter / Carlo Gavazzi EM 24**
Functional extension:	**Upgrade zum Home Smart Energy Data Logger, -Manager**

*¹ not included in the scope of delivery
*² GSM in the "Advanced" version only
*³ S0 output voltage 3,3 VDC

*⁴ Device must be installed in a fire protection housing like control cabinet.

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16. WARRANTY

The warranty for the Smart Energy Monitor of LOKISA Smart Energy GmbH complies with the statutory regulations at the time of purchase. Unauthorised attempts at repair will lead to the loss of the warranty.

17. RETURNING THE DEVICE / RMA

What is an RMA procedure?
You can return your device to us for repairs using the so-called RMA procedure (Return Merchandise Authorisation).
Please request an RMA number before you return the device to us.

Please remember:
We will not accept any devices without RMA number.

Requesting the RMA number
1. Download the RMA form from the following address on our website: **www.smart4energy.com.**
2. Complete the RMA form carefully and remember that ALL mandatory fields must be completed!
3. Return the completed form to us by post or email (See Legal Notice: www.smart4energy.com).

Within the next 3-5 working days you will receive a confirmation about the receipt of your form and your RMA number.
You can also apply for the RMA number from us at +49 (0) 2484 / 918 292.
Please keep the following information ready when talking to one of our employees:

- Your personal data (name, address, telephone number).
- The device data (designation, type, series number).
- The reason for return and a short description of the defect.

Forwarding the devices
Your consignment must contain the following information:

- RMA number which you received from us.
- Your personal data (name, address, telephone number).
- The device data (designation, type, series number).
- The reason for the return and a short description of the defect.

Information on forwarding
Always pack the device carefully (preferably in the original box). Accessories (measuring transducer, plugs or Guide) should only be enclosed if agreed. As soon as we have received the device, we will make every effort to process the matter quickly.

If you have any questions or require further information, then do not hesitate to get in touch at **+49 (0) 2484 / 918 292** or by email: **rma@smart4energy.com**.

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LOKISA Smart Energy GmbH
Trierer Straße 53a
53894 Mechernich / Germany

Service Hotline: +49 (0) 2484 / 918 292
E-Mail: info@smart4energy.com
Internet: www.smart4energy.com

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Software-Version: 1436969780

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EC Declaration of Conformity

In accordance with EC Directive 2004/108/EC (Electromagnetic Compatibility) of 15 December 2004

We hereby declare that the device named below has been designed to comply with the Basic Safety and Health Requirements of EC Directive 2004/108/EC. This Declaration will no longer apply if any unauthorised changes are made to this device.

Manufacturer: [1)]

LOKISA Smart Energy GmbH,
Trierer Straße 53a,
53894 Mechernich
Germany

Description of the device:

Type designation:

Smart Energy Monitor „Standard“
Smart Energy Monitor „Advanced“
Smart Energy Datenlogger „Standard“
Smart Energy Datenlogger „Advanced“
Smart Energy Manager „Standard“
Smart Energy Manager „Advanced“

The conformity with the following EC Directives which are similarly applicable to the product is hereby declared:

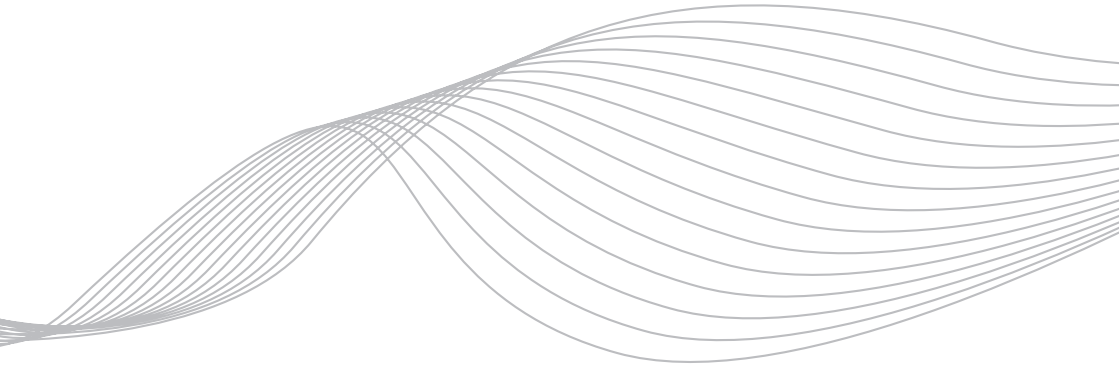
Low Voltage Directive (2006/95/EC) of 12 December 2006
EN 301 489-1 V1.9.2 (EN 55022, EN 61000-4-2, EN 61000-4-3,
EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11,
EN 61000-3-2, EN 61000-3-3, EN 61000-3-11, ISO 7637-2)
EN 301 489-7 V1.3.1
EN 301 489-17 V2.2.1

Information technology equipment –Safety – IEC 60950-1 © 2005
EN 62311:2008, IEC 60950-1:2005 + A1:2009+ A2:2013,
EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011+ AC:2011 + A2:2013

Mechernich, 2015/08/18
LOKISA Smart Energy GmbH

Christian Salewski
Managing Director

[1)] Complete address of the manufacturer



LOKISA Smart Energy GmbH
Trierer Straße 53a
53894 Mechernich / Germany

Phone: +49 (0) 24 84 / 918 292
Web: www.smart4energy.com
E-Mail: info@smart4energy.com